

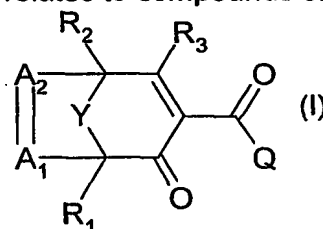
Novel herbicides

The present invention relates to novel, herbicidally active nicotinoyl derivatives, to processes for their preparation, to compositions comprising those compounds, and to their use in controlling weeds, especially in crops of useful plants, or in inhibiting plant growth.

Nicotinoyl derivatives having herbicidal action are described, for example, in WO 00/15615 and WO 01/94339 .

There have now been found novel nicotinoyl derivatives having herbicidal and growth-inhibiting properties, the structures of which are distinguished by a double bond in the 6,7-position of the bicyclo[3.2.1]oct-3-en-2-one, bicyclo[3.2.1]nona-3-en-2-one, 8-oxa-bicyclo[3.2.1]octa-3-en-2-one, 8-aza-bicyclo[3.2.1]octa-3-en-2-one, 8-thia-bicyclo[3.2.1]octa-3-en-2-one and bicyclo[3.2.1]octa-3-ene-2,8-dione group. Some of the compounds of that kind are covered by WO 00/15615 but none of those compounds is specifically disclosed. WO 01/66522 includes pyridine ketones having bicyclo[3.2.1]oct-3-en-2-one groups as intermediates in the preparation of aroyl ketones. There is no mention therein of those compounds having a herbicidal action.

The present invention accordingly relates to compounds of formula I



wherein

Y is oxygen, NR_{4a}, sulfur, sulfonyl, sulfinyl, C(O), C(=NR_{4b}), C(=CR_{6a}R_{6b}) or a C₁-C₄alkylene or C₂-C₄alkenylene chain, which may be interrupted by oxygen, NR_{5a}, sulfur, sulfonyl, sulfinyl, C(O) or C(=NR_{5b}) and/or mono- or poly-substituted by R₆;

A₁ is nitrogen or CR₇;

A₂ is nitrogen or CR₈;

R₁, R₂, R₆, R₇ and R₈ are each independently of the others hydrogen, hydroxy, mercapto, NO₂, cyano, halogen, formyl, oxyiminomethylene, C₁-C₆alkoxyiminomethylene, C₁-C₆alkyl, C₁-C₆haloalkyl, C₂-C₆alkenyl, C₂-C₆haloalkenyl, C₂-C₆alkynyl, C₂-C₆haloalkynyl, C₁-C₆alkoxy,

- 2 -

C₁-C₆haloalkoxy, C₃-C₆alkenyloxy, C₃-C₆alkynyloxy, C₃-C₆oxacycloalkyl, C₃-C₆thiacycloalkyl, C₃-C₆dioxacycloalkyl, C₃-C₆dithiacycloalkyl, C₃-C₆oxathiacycloalkyl, C₁-C₆alkoxycarbonyl, C₁-C₆alkylcarbonyl, C₁-C₆alkoxycarbonyloxy, C₁-C₆alkylcarbonyloxy, C₁-C₆alkylthio, C₁-C₆alkylsulfonyl, C₁-C₆alkylsulfinyl, NR₉R₁₀, C₃-C₆cycloalkyl, tri(C₁-C₆alkyl)silyl, di(C₁-C₆alkyl)phenylsilyl, tri(C₁-C₆alkyl)silyloxy, di(C₁-C₆alkyl)phenylsilyloxy or Ar₁;
 or R₁, R₂, R₆, R₇, R₈ are each independently of the others a C₁-C₆alkyl, C₂-C₆alkenyl, C₂-C₆alkynyl or C₃-C₆cycloalkyl group, which may be interrupted by oxygen, sulfur, sulfonyl, sulfinyl, -NR₁₁- or -C(O)- and/or mono-, di- or tri-substituted by hydroxy, mercapto, NO₂, cyano, halogen, formyl, C₁-C₆alkoxy, C₃-C₆alkenyloxy, C₃-C₆alkynyloxy, C₁-C₆haloalkoxy, C₁-C₂alkoxy-C₁-C₂alkoxy, C₁-C₄alkoxycarbonyloxy, C₁-C₄alkylcarbonyloxy, C₁-C₄alkoxy-carbonyl, C₁-C₄alkylcarbonyl, C₁-C₆alkylthio, C₁-C₆alkylsulfinyl, C₁-C₆alkylsulfonyl, NR₁₂R₁₃, C₁-C₆alkyl, C₂-C₆alkenyl, C₂-C₆alkynyl, C₃-C₆cycloalkyl, tri(C₁-C₆alkyl)silyl, tri(C₁-C₆alkyl)-silyloxy or Ar₂;

or two substituents R₆ at the same carbon atom together form a -CH₂O- or a C₂-C₅alkylene chain, which may be interrupted once or twice by oxygen, sulfur, sulfinyl or sulfonyl and/or mono- or poly-substituted by R_{6c}, with the proviso that two hetero atoms may not be located next to one another;

or two substituents R₆ at different carbon atoms together form an oxygen bridge or a C₁-C₄alkylene chain, which may in turn be substituted by R_{6c};

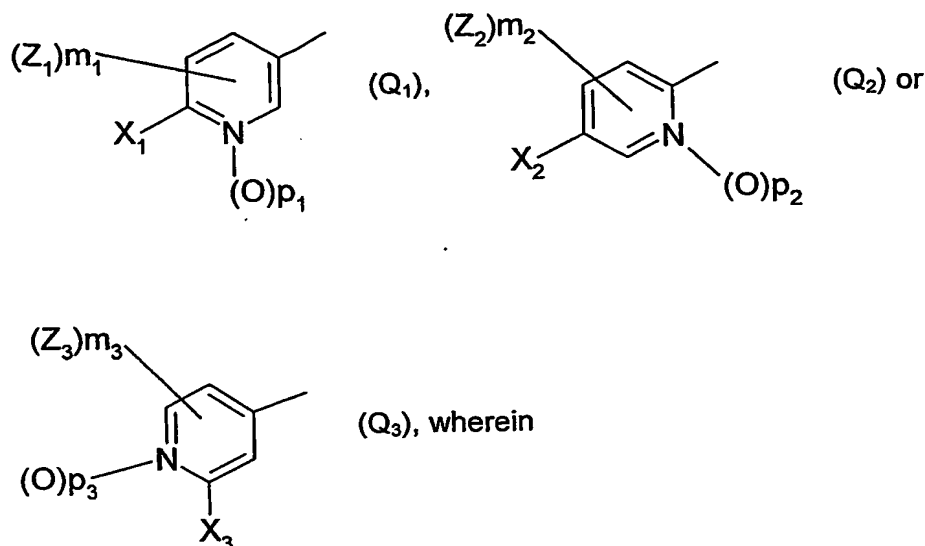
or R₇ and R₈ together form a -CH₂CH=CH-, -OCH=CH- or -CH=CH-CH=CH- bridge or a C₃-C₄alkylene chain, which may be interrupted by oxygen or -S(O)_{n1}- and/or mono- or poly-substituted by R_{6d};

R₃ is hydroxy, halogen, mercapto, C₁-C₈alkylthio, C₁-C₈alkylsulfinyl, C₁-C₈alkylsulfonyl, C₁-C₈haloalkylthio, C₁-C₈haloalkylsulfinyl, C₁-C₈haloalkylsulfonyl, C₁-C₄alkoxy-C₁-C₄alkylthio, C₁-C₄alkoxy-C₁-C₄alkylsulfinyl, C₁-C₄alkoxy-C₁-C₄alkylsulfonyl, C₃-C₈alkenylthio, C₃-C₈alkynylthio, C₁-C₄alkylthio-C₁-C₄alkylthio, C₃-C₄alkenylthio-C₁-C₄alkylthio, C₁-C₄alkoxy-carbonyl-C₁-C₄alkylthio, C₁-C₄alkoxycarbonyl-C₁-C₄alkylsulfinyl, C₁-C₄alkoxycarbonyl-C₁-C₄alkylsulfonyl, C₃-C₈cycloalkylthio, C₃-C₈cycloalkylsulfinyl, C₃-C₈cycloalkylsulfonyl, phenyl-C₁-C₄alkylthio, phenyl-C₁-C₄alkylsulfinyl, phenyl-C₁-C₄alkylsulfonyl, S(O)_{n1}-Ar₃, phenylthio, phenylsulfinyl, phenylsulfonyl, it being possible for the phenyl-containing groups to be substituted by one or more C₁-C₃alkyl, C₁-C₃haloalkyl, C₁-C₃alkoxy, C₁-C₃haloalkoxy, C₁-C₄alkoxycarbonyl, halogen, cyano, hydroxy or nitro groups;

or R₃ is O⁻M⁺, wherein M⁺ is an alkali metal cation or an ammonium cation;

Q is a radical

- 3 -



p_1 , p_2 and p_3 are 0 or 1;

m_1 , m_2 and m_3 are 1, 2 or 3;

X_1 , X_2 and X_3 are hydroxy, halogen, C_1 - C_6 alkyl, C_1 - C_6 haloalkyl, C_2 - C_6 alkenyl, C_2 - C_6 haloalkenyl, C_2 - C_6 alkynyl, C_2 - C_6 haloalkynyl, C_1 - C_6 alkoxy, C_1 - C_6 haloalkoxy, C_1 - C_6 alkylthio, C_1 - C_6 alkylsulfinyl, C_1 - C_6 alkylsulfonyl, C_1 - C_6 haloalkylthio, C_1 - C_6 haloalkylsulfinyl or C_1 - C_6 haloalkylsulfonyl;

Z_1 , Z_2 and Z_3 are C_1 - C_6 alkyl which is substituted by the following substituents: C_3 - C_4 cycloalkyl or C_3 - C_4 cycloalkyl substituted by halogen, C_1 - C_6 alkyl, C_1 - C_3 alkoxy or C_1 - C_3 alkoxy- C_1 - C_3 alkyl; oxiranyl or oxiranyl substituted by C_1 - C_6 alkyl or C_1 - C_3 alkoxy- C_1 - C_3 alkyl; 3-oxetanyl or 3-oxetanyl substituted by C_1 - C_6 alkyl, C_1 - C_3 alkoxy or C_1 - C_3 alkoxy- C_1 - C_3 alkyl; 3-oxetanyloxy or 3-oxetanyloxy substituted by C_1 - C_6 alkyl, C_1 - C_3 alkoxy or C_1 - C_3 alkoxy- C_1 - C_3 alkyl; C_3 - C_6 cycloalkyloxy or C_3 - C_4 cycloalkyloxy substituted by halogen, C_1 - C_6 alkyl, C_1 - C_3 alkoxy or C_1 - C_3 alkoxy- C_1 - C_3 alkyl; C_1 - C_6 haloalkoxy; C_1 - C_6 alkylsulfonyloxy; C_1 - C_6 haloalkylsulfonyloxy; phenylsulfonyloxy; benzylsulfonyloxy; benzoyloxy; phenoxy; phenylthio; phenylsulfinyl; phenylsulfonyl; Ar_{10} ; OAr_{12} ; $tri(C_1-C_6alkyl)silyl$ or $tri(C_1-C_6alkyl)silyloxy$, it being possible for the phenyl-containing groups to be mono- or poly-substituted by C_1 - C_3 alkyl, C_1 - C_3 haloalkyl, C_1 - C_3 alkoxy, C_1 - C_3 haloalkoxy, halogen, cyano, hydroxy or nitro;

or Z_1 , Z_2 and Z_3 are 3-oxetanyl; 3-oxetanyl substituted by C_1 - C_3 alkoxy, C_1 - C_3 alkoxy- C_1 - C_3 alkyl or C_1 - C_6 alkyl; C_3 - C_6 cycloalkyl substituted by halogen, C_1 - C_3 alkyl or C_1 - C_3 alkoxy- C_1 - C_3 alkyl; $tri(C_1-C_6alkyl)silyl$; $tri(C_1-C_6alkyl)silyloxy$ or $CH=P(phenyl)_3$;

or Z_1 , Z_2 and Z_3 are a C_1 - C_6 alkyl, C_2 - C_6 alkenyl or C_2 - C_6 alkynyl group, which is interrupted by oxygen, $-O(CO)-$, $-(CO)O-$, $-O(CO)O-$, $-N(R_{14})O-$, $-ONR_{15}-$, sulfur, sulfinyl, sulfonyl, $-SO_2NR_{16}-$, $-NR_{17}SO_2-$ or $-NR_{18}-$ and is mono- or poly-substituted by L_1 ; it also being

possible for L_1 to be bonded at the terminal carbon atom of the C_1 - C_6 alkyl, C_2 - C_6 alkenyl or C_2 - C_6 alkynyl group;

or Z_1 , Z_2 and Z_3 are hydrogen, hydroxy, mercapto, NO_2 , cyano, halogen, formyl, C_1 - C_6 alkyl, C_1 - C_6 haloalkyl, C_2 - C_6 alkenyl, C_2 - C_6 haloalkenyl, C_2 - C_6 alkynyl, C_2 - C_6 haloalkynyl, C_1 - C_6 alkoxy, C_1 - C_6 haloalkoxy, C_1 - C_6 alkoxycarbonyl, C_1 - C_6 alkylcarbonyl, C_1 - C_6 alkylthio, C_1 - C_6 alkylsulfonyl, C_1 - C_6 alkylsulfinyl, $NR_{22}R_{23}$, phenyl which may be mono- or poly-substituted by C_1 - C_3 alkyl, C_1 - C_3 haloalkyl, C_1 - C_3 alkoxy, C_1 - C_3 haloalkoxy, halogen, cyano, hydroxy or nitro, C_3 - C_6 cycloalkyl, C_5 - C_6 cycloalkyl substituted by C_1 - C_3 alkoxy, C_1 - C_3 alkoxy- C_1 - C_3 alkyl or C_1 - C_6 alkyl, or Ar_5 , $O-Ar_6$, $N(R_{24})Ar_7$ or $S(O)_nAr_8$;

L_1 is hydrogen, halogen, hydroxy, amino, formyl, nitro, cyano, mercapto, carbamoyl, $P(O)(OC_1-C_6alkyl)_2$, C_1 - C_6 alkoxy, C_1 - C_6 haloalkoxy, C_1 - C_6 alkoxycarbonyl, C_2 - C_6 alkenyl, C_2 - C_6 haloalkenyl, C_2 - C_6 alkynyl, C_2 - C_6 haloalkynyl, C_3 - C_6 cycloalkyl, halo-substituted C_3 - C_6 cycloalkyl, C_3 - C_6 alkenyloxy, C_3 - C_6 alkynyloxy, C_3 - C_6 haloalkenyloxy, cyano- C_1 - C_6 alkoxy, C_1 - C_6 alkoxy- C_1 - C_6 alkoxy, C_1 - C_6 alkylthio- C_1 - C_6 alkoxy, C_1 - C_6 alkylsulfinyl- C_1 - C_6 alkoxy, C_1 - C_6 alkylsulfonyl- C_1 - C_6 alkoxy, C_1 - C_6 alkoxycarbonyl- C_1 - C_6 alkoxy, C_1 - C_6 alkylcarbonyloxy- C_1 - C_6 alkylcarbonyl, C_1 - C_6 alkylthio, C_1 - C_6 alkylsulfinyl, C_1 - C_6 alkylsulfonyl, C_1 - C_6 haloalkylthio, C_1 - C_6 haloalkylsulfinyl, C_1 - C_6 haloalkylsulfonyl or oxiranyl, which may in turn be substituted by C_1 - C_6 alkyl, C_1 - C_3 alkoxy or C_1 - C_3 alkoxy- C_1 - C_3 alkyl, or (3-oxetanyl)-oxy, which may in turn be substituted by C_1 - C_6 alkyl, C_1 - C_3 alkoxy or C_1 - C_3 alkoxy- C_1 - C_3 alkyl, or benzyloxy, benzyloxy, benzylthio, benzylsulfinyl, benzylsulfonyl, C_1 - C_6 alkylamino, $di(C_1-C_6alkyl)amino$, $R_{19}S(O)_2O-$, $R_{20}N(R_{21})SO_2-$, rhodano, phenyl, phenoxy, phenylthio, phenylsulfinyl, phenylsulfonyl, Ar_4 or OAr_{11} , it being possible for the phenyl-containing groups in turn to be substituted by one or more C_1 - C_3 alkyl, C_1 - C_3 haloalkyl, C_1 - C_3 alkoxy, C_1 - C_3 haloalkoxy, halogen, cyano, hydroxy or nitro groups;

R_{4a} and R_{5a} are each independently of the other hydrogen, C_1 - C_6 alkyl, C_1 - C_6 haloalkyl, cyano, formyl, C_1 - C_6 alkylcarbonyl, C_1 - C_6 alkoxycarbonyl, carbamoyl, C_1 - C_6 alkylaminocarbonyl, $di(C_1-C_6alkylamino)carbonyl$, $di(C_1-C_6alkylamino)sulfonyl$, C_3 - C_6 cycloalkylcarbonyl, C_1 - C_6 alkylsulfonyl, phenylcarbonyl, phenylaminocarbonyl or phenylsulfonyl, it being possible for the phenyl groups to be mono- or poly-substituted by C_1 - C_6 alkyl, C_1 - C_6 haloalkyl, C_1 - C_6 alkoxy, C_1 - C_6 haloalkoxy, halogen, cyano, hydroxy or nitro;

R_{4b} and R_{5b} are each independently of the other hydroxy, C_1 - C_6 alkoxy, C_3 - C_6 alkenyloxy, C_3 - C_6 alkynyloxy or benzyloxy, it being possible for the benzyl group to be mono- or poly-substituted by C_1 - C_6 alkyl, C_1 - C_6 haloalkyl, C_1 - C_6 alkoxy, C_1 - C_6 haloalkoxy, halogen, cyano, hydroxy or nitro;

R_9 , R_{11} , R_{13} , R_{16} , R_{17} , R_{18} , R_{20} , R_{23} and R_{24} are each independently of the others hydrogen, C_1 - C_6 alkyl, Ar_8 , C_1 - C_6 haloalkyl, C_1 - C_6 alkylcarbonyl, C_1 - C_6 alkoxycarbonyl, C_1 - C_6 alkylsulfonyl,

phenyl, it being possible for the phenyl group in turn to be mono- or poly-substituted by C₁-C₆alkyl, C₁-C₆haloalkyl, C₁-C₆alkoxy, C₁-C₆haloalkoxy, halogen, cyano, hydroxy or nitro; R_{6a} is hydrogen, C₁-C₆alkyl or C₁-C₆alkylcarbonyl; or together with R_{6b} is a C₂-C₅alkylene chain;

R_{6b}, R_{6d}, R₁₀, R₁₂ and R₂₂ are each independently of the others hydrogen or C₁-C₆alkyl; R_{6c}, R₁₄, R₁₅, R₁₉ and R₂₁ are each independently of the others C₁-C₆alkyl or C₁-C₆haloalkyl; Ar₁, Ar₂, Ar₃, Ar₄, Ar₅, Ar₆, Ar₇, Ar₈, Ar₉, Ar₁₀, Ar₁₁ and Ar₁₂ are each independently of the others a five- to ten-membered, monocyclic or fused bicyclic ring system, which may be aromatic, partially saturated or fully saturated and may contain from 1 to 4 hetero atoms selected from nitrogen, oxygen, sulfur, C(O) and C(=NR₂₅), and each ring system may contain not more than two oxygen atoms, not more than two sulfur atoms, not more than two C(O) groups and not more than one C(=NR₂₅) group, and each ring system may itself be mono- or poly-substituted by C₁-C₆alkyl, C₁-C₆haloalkyl, C₂-C₆alkenyl, C₂-C₆haloalkenyl, C₂-C₆alkynyl, C₂-C₆haloalkynyl, C₁-C₆alkoxy, C₁-C₆haloalkoxy, C₃-C₆alkenyloxy, C₃-C₆alkynyloxy, mercapto, amino, hydroxy, C₁-C₆alkylthio, C₁-C₆haloalkylthio, C₃-C₆alkenylthio, C₃-C₆haloalkenylthio, C₃-C₆alkynylthio, C₁-C₃alkoxy-C₁-C₃alkylthio, C₁-C₄alkylcarbonyl-C₁-C₃alkylthio, C₁-C₄alkoxycarbonyl-C₁-C₃alkylthio, cyano-C₁-C₃alkylthio, C₁-C₆alkylsulfinyl, C₁-C₆haloalkylsulfinyl, C₁-C₆alkylsulfonyl, C₁-C₆haloalkylsulfonyl, aminosulfonyl, C₁-C₂alkylaminosulfonyl, N,N-di(C₁-C₂alkyl)aminosulfonyl, di(C₁-C₄alkyl)amino, halogen, cyano, nitro or phenyl, it being possible for the phenyl group in turn to be substituted by hydroxy, C₁-C₆alkylthio, C₁-C₆haloalkylthio, C₃-C₆alkenylthio, C₃-C₆haloalkenylthio, C₃-C₆alkynylthio, C₁-C₃alkoxy-C₁-C₃alkylthio, C₁-C₄alkylcarbonyl-C₁-C₃alkylthio, C₁-C₄alkoxycarbonyl-C₁-C₃alkylthio, cyano-C₁-C₃alkylthio, C₁-C₆alkylsulfinyl, C₁-C₆haloalkylsulfinyl, C₁-C₆alkylsulfonyl, C₁-C₆haloalkylsulfonyl, aminosulfonyl, C₁-C₂alkylaminosulfonyl, N,N-di(C₁-C₂alkyl)aminosulfonyl, di(C₁-C₄alkyl)amino, halogen, cyano or nitro, and the substituents at the nitrogen atom in the heterocyclic ring being other than halogen, and two oxygen atoms not being located next to one another;

R₂₅ is hydrogen, hydroxy, C₁-C₆alkyl, C₁-C₆haloalkyl, C₁-C₆alkoxy, C₁-C₆alkylcarbonyl, C₁-C₆alkoxycarbonyl or C₁-C₆alkylsulfonyl; and

n₁ is 0, 1 or 2; and n₆ is 0, 1 or 2;

and agronomically acceptable salts/isomers/enantiomers/tautomers of those compounds.

The alkyl groups appearing in the substituent definitions may be straight-chain or branched and are, for example, methyl, ethyl, n-propyl, isopropyl, n-butyl, sec-butyl, isobutyl, tert-butyl, pentyl, hexyl, heptyl and octyl and the branched isomers thereof. Alkoxy, alkenyl and alkynyl radicals are derived from the mentioned alkyl radicals. The alkenyl and alkynyl groups may

be mono- or poly-unsaturated. C₁-C₄alkylene and C₂-C₄alkenylene chains may likewise be straight-chain or branched.

Halogen is generally fluorine, chlorine, bromine or iodine, preferably fluorine or chlorine. The same is true of halogen in conjunction with other meanings, such as haloalkyl or halophenyl.

Haloalkyl groups preferably have a chain length of from 1 to 6 carbon atoms. Haloalkyl is, for example, fluoromethyl, difluoromethyl, trifluoromethyl, chloromethyl, dichloromethyl, trichloromethyl, 2,2,2-trifluoroethyl, 2-fluoroethyl, 2-chloroethyl, pentafluoroethyl, 1,1-difluoro-2,2,2-trichloroethyl, 2,2,3,3-tetrafluoroethyl or 2,2,2-trichloroethyl; preferably trichloromethyl, difluorochloromethyl, difluoromethyl, trifluoromethyl or dichlorofluoromethyl.

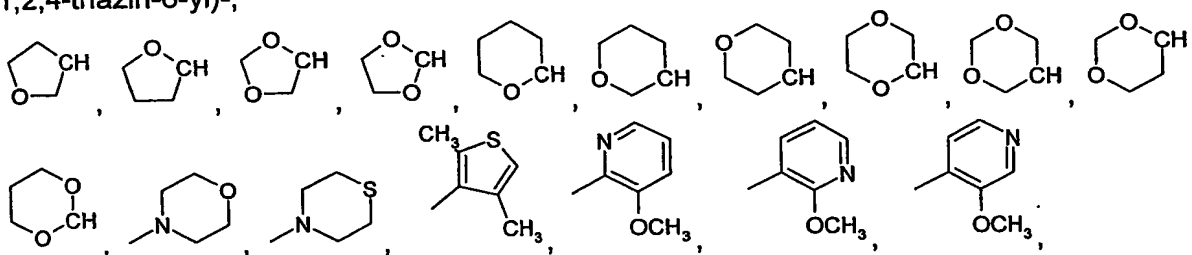
In the context of the present invention, the term "mono- or poly-substituted" is generally to be understood as meaning mono- to penta-substituted, especially mono- to tri-substituted.

As haloalkenyl there come into consideration alkenyl groups mono- or poly-substituted by halogen, halogen being fluorine, chlorine, bromine or iodine, and especially fluorine or chlorine, for example 2,2-difluoro-1-methylvinyl, 3-fluoropropenyl, 3-chloropropenyl, 3-bromopropenyl, 2,3,3-trifluoropropenyl, 2,3,3-trichloropropenyl and 4,4,4-trifluoro-but-2-en-1-yl. Of the C₃-C₈alkenyl groups mono-, di- or tri-substituted by halogen preference is given to those having a chain length of from 3 to 5 carbon atoms.

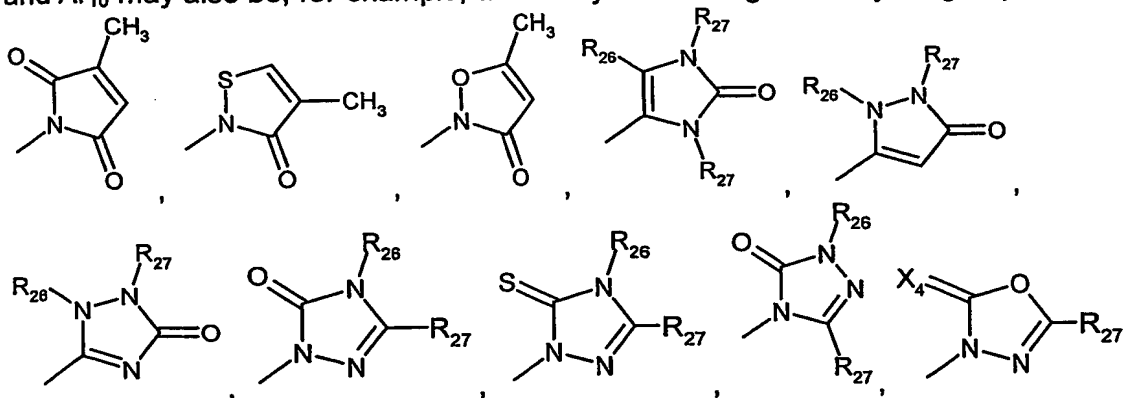
As haloalkynyl there come into consideration, for example, alkynyl groups mono- or poly-substituted by halogen, halogen being bromine, iodine and especially fluorine or chlorine, for example 3-fluoropropynyl, 3-chloropropynyl, 3-bromopropynyl, 3,3,3-trifluoropropynyl and 4,4,4-trifluoro-but-2-yn-1-yl. Of the alkynyl groups mono- or poly-substituted by halogen preference is given to those having a chain length of from 3 to 5 carbon atoms.

Ar₁, Ar₂, Ar₃, Ar₄, Ar₅, Ar₆, Ar₇, Ar₈, Ar₉, Ar₁₀, Ar₁₁ and Ar₁₂ are, for example, phenyl, naphthyl or the following heterocyclic groups: (1-methyl-1H-pyrazol-3-yl)-; (1-ethyl-1H-pyrazol-3-yl)-; (1-propyl-1H-pyrazol-3-yl)-; (1H-pyrazol-3-yl)-; (1,5-dimethyl-1H-pyrazol-3-yl)-; (4-chloro-1-methyl-1H-pyrazol-3-yl)-; (1H-pyrazol-1-yl)-; (3-methyl-1H-pyrazol-1-yl)-; (3,5-dimethyl-1H-pyrazol-1-yl)-; (3-isoxazolyl)-; (5-methyl-3-isoxazolyl)-; (3-methyl-5-isoxazolyl)-; (5-isoxazolyl)-; (1H-pyrrol-2-yl)-; (1-methyl-1H-pyrrol-2-yl)-; (1H-pyrrol-1-yl)-; (1-methyl-1H-pyrrol-3-yl)-; (2-furanyl)-; (5-methyl-2-furanyl)-; (3-furanyl)-; (5-methyl-2-thienyl)-; (2-thienyl)-; (3-thienyl)-; (1-methyl-1H-imidazol-2-yl)-; (1H-imidazol-2-yl)-; (1-methyl-1H-imidazol-4-yl)-; (1-

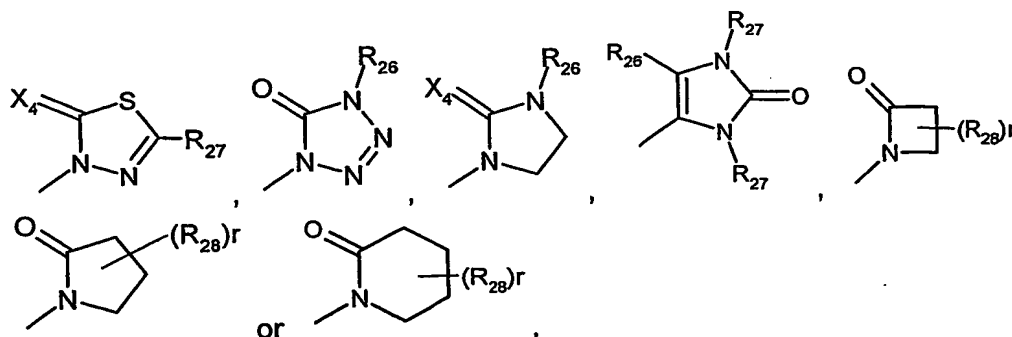
methyl-1H-imidazol-5-yl)-; (4-methyl-2-oxazolyl)-; (5-methyl-2-oxazolyl)-; (2-oxazolyl)-; (2-methyl-5-oxazolyl)-; (2-methyl-4-oxazolyl)-; (4-methyl-2-thiazolyl)-; (5-methyl-2-thiazolyl)-; (2-thiazolyl)-; (2-methyl-5-thiazolyl)-; (2-methyl-4-thiazolyl)-; (3-methyl-4-isothiazolyl)-; (3-methyl-5-isothiazolyl)-; (5-methyl-3-isothiazolyl)-; (1-methyl-1H-1,2,3-triazol-4-yl)-; (2-methyl-2H-1,2,3-triazol-4-yl)-; (4-methyl-2H-1,2,3-triazol-2-yl)-; (1-methyl-1H-1,2,4-triazol-3-yl)-; (1,5-dimethyl-1H-1,2,4-triazol-3-yl)-; (3-methyl-1H-1,2,4-triazol-1-yl)-; (5-methyl-1H-1,2,4-triazol-1-yl)-; (4,5-dimethyl-4H-1,2,4-triazol-3-yl)-; (4-methyl-4H-1,2,4-triazol-3-yl)-; (4H-1,2,4-triazol-4-yl)-; (5-methyl-1,2,3-oxadiazol-4-yl)-; (1,2,3-oxadiazol-4-yl)-; (3-methyl-1,2,4-oxadiazol-5-yl)-; (5-methyl-1,2,4-oxadiazol-3-yl)-; (4-methyl-3-furazanyl)-; (3-furazanyl)-; (5-methyl-1,2,4-oxadiazol-2-yl)-; (5-methyl-1,2,3-thiadiazol-4-yl)-; (1,2,3-thiadiazol-4-yl)-; (3-methyl-1,2,4-thiadiazol-5-yl)-; (5-methyl-1,2,4-thiadiazol-3-yl)-; (4-methyl-1,2,5-thiadiazol-3-yl)-; (5-methyl-1,3,4-thiadiazol-2-yl)-; (1-methyl-1H-tetrazol-5-yl)-; (1H-tetrazol-5-yl)-; (5-methyl-1H-tetrazol-1-yl)-; (2-methyl-2H-tetrazol-5-yl)-; (2-ethyl-2H-tetrazol-5-yl)-; (5-methyl-2H-tetrazol-2-yl)-; (2H-tetrazol-2-yl)-; (2-pyridyl)-; (6-methyl-2-pyridyl)-; (4-pyridyl)-; (3-pyridyl)-; (6-methyl-3-pyridazinyl)-; (5-methyl-3-pyridazinyl)-; (3-pyridazinyl)-; (4,6-dimethyl-2-pyrimidinyl)-; (4-methyl-2-pyrimidinyl)-; (2-pyrimidinyl)-; (2-methyl-4-pyrimidinyl)-; (2-chloro-4-pyrimidinyl)-; (2,6-dimethyl-4-pyrimidinyl)-; (4-pyrimidinyl)-; (2-methyl-5-pyrimidinyl)-; (6-methyl-2-pyrazinyl)-; (2-pyrazinyl)-; (4,6-dimethyl-1,3,5-triazin-2-yl)-; (4,6-dichloro-1,3,5-triazin-2-yl)-; (1,3,5-triazin-2-yl)-; (4-methyl-1,3,5-triazin-2-yl)-; (3-methyl-1,2,4-triazin-5-yl)-; (3-methyl-1,2,4-triazin-6-yl)-;



and Ar₁₀ may also be, for example, a carbonyl-containing heterocyclic group




- 8 -

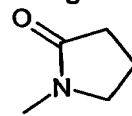


wherein each R_{26} is methyl, each R_{27} and each R_{28} are independently hydrogen, C_1 - C_3 alkyl, C_1 - C_3 alkoxy, C_1 - C_3 alkylthio or trifluoromethyl, X_4 is oxygen or sulfur and $r = 1, 2, 3$ or 4 .

Where no free valency is indicated in those definitions of $Ar_1, Ar_2, Ar_3, Ar_4, Ar_5, Ar_6, Ar_7, Ar_8,$

Ar_9, Ar_{10}, Ar_{11} and Ar_{12} , for example as in , the linkage site is located at the carbon

atom labelled "CH" or in a case such as, for example,



at the bonding site

indicated at the bottom left.

The alkali metal cation M^+ (for example in the meaning of O^+M^+ in R_3) denotes in the context of the present invention preferably the sodium cation or the potassium cation.

Alkoxy groups preferably have a chain length of from 1 to 6 carbon atoms. Alkoxy is, for example, methoxy, ethoxy, propoxy, isopropoxy, n-butoxy, isobutoxy, sec-butoxy and tert-butoxy and the isomers of pentyloxy and hexyloxy; preferably methoxy and ethoxy. Alkylcarbonyl is preferably acetyl, propionyl or pivaloyl. Alkoxy carbonyl is, for example, methoxy carbonyl, ethoxy carbonyl, propoxy carbonyl, isopropoxy carbonyl, n-butoxy carbonyl, isobutoxy carbonyl, sec-butoxy carbonyl or tert-butoxy carbonyl; preferably methoxy carbonyl or ethoxy carbonyl. Haloalkoxy groups preferably have a chain length of from 1 to 6 carbon atoms. Haloalkoxy is e.g. fluoromethoxy, difluoromethoxy, trifluoromethoxy, 2,2,2-trifluoroethoxy, 1,1,2,2-tetrafluoroethoxy, 2-fluoroethoxy, 2-chloroethoxy, 2,2-difluoroethoxy and 2,2,2-trichloroethoxy; preferably difluoromethoxy, 2-chloroethoxy and trifluoromethoxy.

Alkylthio groups preferably have a chain length of from 1 to 8 carbon atoms. Alkylthio is, for example, methylthio, ethylthio, propylthio, isopropylthio, n-butylthio, isobutylthio, sec-butylthio or tert-butylthio, preferably methylthio and ethylthio. Alkylsulfinyl is, for example, methylsulfinyl, ethylsulfinyl, propylsulfinyl, isopropylsulfinyl, n-butylsulfinyl, isobutylsulfinyl, sec-

butylsulfinyl, tert-butylsulfinyl; preferably methylsulfinyl and ethylsulfinyl. Alkylsulfonyl is, for example, methylsulfonyl, ethylsulfonyl, propylsulfonyl, isopropylsulfonyl, n-butylsulfonyl, isobutylsulfonyl, sec-butylsulfonyl or tert-butylsulfonyl; preferably methylsulfonyl or ethylsulfonyl.

Alkylamino is, for example, methylamino, ethylamino, n-propylamino, isopropylamino or the isomers of butylamine. Dialkylamino is, for example, dimethylamino, methylethylamino, diethylamino, n-propylmethylamino, di-butylamino and di-isopropylamino. Preference is given to alkylamino and dialkylamino groups – including as a component of (N-alkyl)sulfonylamino and N-(alkylamino)sulfonyl groups, such as (N,N-dimethyl)sulfonylamino and N,N-(dimethylamino)sulfonyl – each having a chain length of from 1 to 4 carbon atoms.

Alkoxyalkoxy groups preferably have a chain length of from 1 to 8 carbon atoms. Examples of alkoxyalkoxy are: methoxymethoxy, methoxyethoxy, methoxypropoxy, ethoxymethoxy, ethoxyethoxy, propoxymethoxy and butoxybutoxy. Alkoxyalkyl groups have a chain length of preferably from 1 to 6 carbon atoms. Alkoxyalkyl is, for example, methoxymethyl, methoxyethyl, ethoxymethyl, ethoxyethyl, n-propoxymethyl, n-propoxyethyl, isopropoxymethyl or isopropoxyethyl.

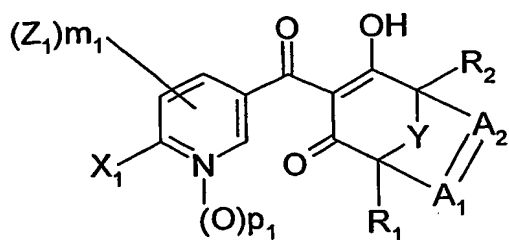
Alkylthioalkyl groups preferably have from 1 to 8 carbon atoms. Alkylthioalkyl is, for example, methylthiomethyl, methylthioethyl, ethylthiomethyl, ethylthioethyl, n-propylthiomethyl, n-propylthioethyl, isopropylthiomethyl, isopropylthioethyl, butylthiomethyl, butylthioethyl or butylthiobutyl.

The cycloalkyl groups having up to 8 carbon atoms preferably have from 3 to 6 ring carbon atoms, for example cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl. A cycloalkyl group having up to 8 carbon atoms also includes a C₃-C₆alkyl group bonded by way of a methylene or ethylene bridge, for example cyclopropylmethyl, cyclobutylmethyl and cyclopentylmethyl. Cycloalkyl groups, as well as, for example, the oxygen-containing oxiranyl, oxiranylmethyl, 3-oxetanyl, 2- and 3-tetrahydrofuranyl, 2-(2- and 3-tetrahydrofuranyl)methyl, 2-, 3- and 4-tetrahydropyranyl, 2-(2-tetrahydropyranyl)methyl, 1,3-dioxolanyl, 2-(1,3-dioxolanyl)methyl, 4-(1,3-dioxolanyl)methyl, 1,3-dioxanyl, 1,4-dioxanyl and similar saturated groups – especially as a component of Ar₅ in L₁ – can also be mono- or poly-substituted by C₁-C₃alkyl, preferably mono- to tetra-substituted by methyl.

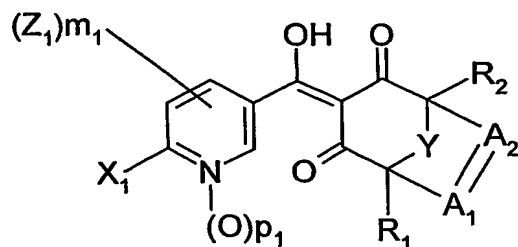
Phenyl, including as a component of a substituent such as phenoxy, benzyl, benzyloxy, benzoyl, phenylthio, phenylalkyl, phenoxyalkyl, may be in substituted form. The substituents may in that case be in the ortho-, meta- and/or para-position(s). Preferred substituent positions are the ortho- and para-positions relative to the ring linkage site. The phenyl groups are preferably unsubstituted or mono- or di-substituted, especially unsubstituted or mono-substituted.

Z_1 , Z_2 and Z_3 as a C_1 - C_6 alkyl group which is interrupted by oxygen, $-O(CO)-$, $-(CO)O-$, $-O(CO)O-$, $-N(R_{14})O-$, $-ONR_{15}-$, sulfur, sulfinyl, sulfonyl, $-SO_2NR_{16}-$, $-NR_{17}SO_2-$ or $-NR_{18}-$ and may be mono- or poly-substituted by a group L_1 when that C_1 - C_6 alkyl group is interrupted by oxygen, $-O(CO)O-$, sulfur, sulfinyl or sulfonyl, is to be understood as meaning, for example, a bidentate bridging member $-CH_2OCH_2-$, $-CH_2CH_2OCH_2-$, $-CH_2OCH_2CH_2-$, $-CH_2OCH_2CH_2CH_2-$, $-CH_2OC(O)CH_2-$, $-CH_2(CO)OCH_2-$, $-CH_2O(CO)OCH_2-$, $-CH_2SCH_2-$, $-CH_2S(O)CH_2-$, $-CH_2SO_2CH_2-$, $-CH_2SCH_2CH_2-$, $-CH_2S(O)CH_2CH_2-$, $-CH_2SO_2CH_2CH_2-$, $-CH_2N(CH_3)SO_2CH_2-$, $-CH_2N(SO_2CH_3)CH_2-$, $-CH_2N(C(O)CH_3)CH_2-$, $-CH_2N(COOCH_2CH_3)CH_2-$ or $-CH_2N(COOCH_3)CH_2-$, the left-hand bonding site being bonded to the pyridine moiety and the right-hand side to the substituent L_1 . And Z_1 , Z_2 and Z_3 as a C_2 - C_6 alkenyl or C_2 - C_6 alkynyl group which is interrupted by oxygen, $-O(CO)-$, $-(CO)O-$, $-O(CO)O-$, $-N(R_{14})O-$, $-ONR_{15}-$, sulfur, sulfinyl, sulfonyl, $-SO_2NR_{16}-$, $-NR_{17}SO_2-$ or $-NR_{18}-$ and may be mono- or poly-substituted by a group L_1 is to be understood as meaning, for example, a bidentate bridging member $-CH=CHCH_2OCH_2-$ or $-C\equiv CCH_2OCH_2-$. Such an unsubstituted or L_1 -substituted C_1 - C_6 alkyl, C_2 - C_6 alkenyl or C_2 - C_6 alkynyl group Z_1 , Z_2 or Z_3 which is interrupted by oxygen, $-O(CO)-$, $-(CO)O-$, $-O(CO)O-$, $-N(R_{14})O-$, $-ONR_{15}-$, sulfur, sulfinyl, sulfonyl, $-SO_2NR_{16}-$, $-NR_{17}SO_2-$ or $-NR_{18}-$ can be either straight-chain or branched, for example as in the case of the bidentate bridging members $-CH(CH_3)OCH_2-$ and $-CH_2OCH(CH_3)CH_2-$.

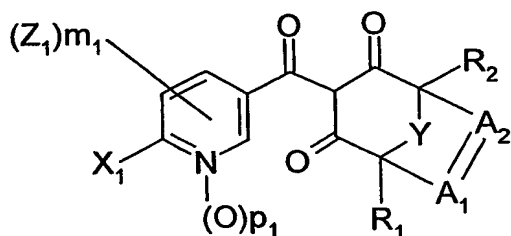
The compounds of formula I may occur in various tautomeric forms such as, for example, when R_3 is hydroxy and Q is Q_1 , in formulae I', I'', I''' and I''', preference being given to formulae I' and I''.



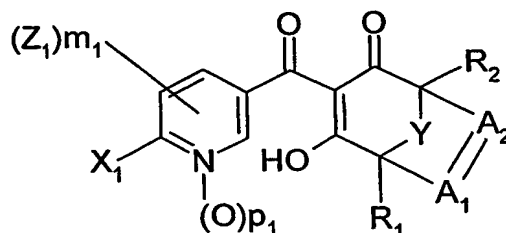
I'



I''



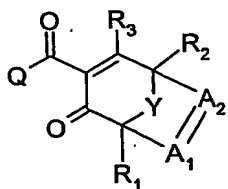
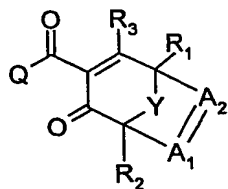
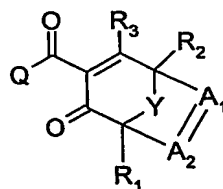
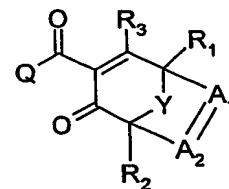
I'''



I''''

Since compounds of formula I may also contain asymmetric carbon atoms, for example in the case of R_1 , R_2 , A_1 , A_2 and Y , their substituents R_6 , R_7 and R_8 , and also in the case of carbon atoms carrying X_1 , X_2 , X_3 , Z_1 , Z_2 and Z_3 , and accordingly in any sulfoxides, all the stereoisomers and all chiral $<R>$ and $<S>$ forms are also included. Also included are all constitutional isomeric $<E>$ and $<Z>$ forms in respect of any $-C=C-$ and $-C=N-$ double bonds.

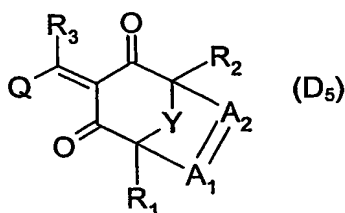
Since R_1 and R_2 , like R_7 and R_8 in A_1 and A_2 , may each independently of the other have the same or different meanings, the compound of formula I may also occur in various constitutional isomeric forms. The invention therefore relates also to all those constitutional isomeric forms in respect of the spatial arrangement of A_1 and A_2 and the substituents R_1 and R_2 in respect of the substituent R_3 as shown in formulae D_1 to D_4 .

D₁D₂D₃D₄

The same applies also to the spatial arrangement of the bridging member Y in respect of the carbon atoms carrying R_1 and R_2 when Y is a C_1 - C_4 alkylene or C_2 - C_4 alkenylene chain which may be interrupted by oxygen, NR_{5a} , sulfur, sulfonyl, sulfinyl, $C(O)$ or $C(=NR_{5b})$ and/or mono- or poly-substituted by R_6 .

- 12 -

The substituent R_3 may also be located on the bridging member, as has already been shown above in formula I" wherein R_3 is hydroxy. The present invention relates also to those constitutional isomeric forms D_5



of the compounds of formula I.

That arrangement of A_1 , A_2 , Y and the substituents R_1 , R_2 , R_4 , R_5 , R_6 , R_7 and R_8 relates accordingly also to all possible tautomeric and stereoisomeric forms of the compounds used as intermediates.

The present invention relates also to the salts which the compounds of formula I are able to form with amines, alkali metal and alkaline earth metal bases or quaternary ammonium bases. Among the alkali metal and alkaline earth metal bases as salt formers, special mention should be made of the hydroxides of lithium, sodium, potassium, magnesium, barium and calcium, but especially the hydroxides of sodium, barium and potassium.

Examples of amines suitable for ammonium salt formation include ammonia as well as primary, secondary and tertiary C_1 - C_{18} alkylamines, C_1 - C_4 hydroxyalkylamines and C_2 - C_4 -alkoxyalkylamines, for example methylamine, ethylamine, n-propylamine, isopropylamine, the four butylamine isomers, n-amylamine, isoamylamine, hexylamine, heptylamine, octylamine, nonylamine, decylamine, pentadecylamine, hexadecylamine, heptadecylamine, octadecylamine, methylethylamine, methylisopropylamine, methylhexylamine, methylnonylamine, methylpentadecylamine, methyloctadecylamine, ethylbutylamine, ethylheptylamine, ethyloctylamine, hexylheptylamine, hexyloctylamine, dimethylamine, diethylamine, di-n-propylamine, diisopropylamine, di-n-butylamine, di-n-amylamine, diisoamylamine, dihexylamine, diheptylamine, dioctylamine, ethanolamine, n-propanolamine, isopropanolamine, N,N-diethanolamine, N-ethylpropanolamine, N-butylethanolamine, allylamine, n-butenyl-2-amine, n-pentenyl-2-amine, 2,3-dimethylbutenyl-2-amine, dibutenyl-2-amine, n-hexenyl-2-amine, propylenediamine, trimethylamine, triethylamine, tri-n-propylamine, triisopropylamine, tri-n-butylamine, triisobutylamine, tri-sec-butylamine, tri-n-amylamine, methoxyethylamine

and ethoxyethylamine; heterocyclic amines, for example pyridine, quinoline, isoquinoline, morpholine, piperidine, pyrrolidine, indoline, quinuclidine and azepine; primary arylamines, for example anilines, methoxyanilines, ethoxyanilines, o-, m- and p-toluidines, phenylene-diamines, benzidines, naphthylamines and o-, m- and p-chloroanilines; but especially triethylamine, isopropylamine and diisopropylamine.

Preferred quaternary ammonium bases suitable for salt formation correspond, for example, to the formula $[N(R_a R_b R_c R_d)]OH$ wherein R_a , R_b , R_c and R_d are each independently of the others C_1 - C_4 alkyl. Further suitable tetraalkylammonium bases with other anions can be obtained, for example, by anion exchange reactions.

Preference is given to compounds of formula I wherein

R_1 , R_2 , R_6 , R_7 and R_8 are each independently of the others hydrogen, hydroxy, mercapto, NO_2 , cyano, halogen, formyl, C_1 - C_6 alkyl, C_1 - C_6 haloalkyl, C_2 - C_6 alkenyl, C_2 - C_6 haloalkenyl, C_2 - C_6 alkynyl, C_2 - C_6 haloalkynyl, C_1 - C_6 alkoxy, C_1 - C_6 haloalkoxy, C_3 - C_6 alkenyloxy, C_3 - C_6 alkynyloxy, C_3 - C_6 oxacycloalkyl, C_3 - C_6 thiacycloalkyl, C_3 - C_6 dioxacycloalkyl, C_3 - C_6 dithiacycloalkyl, C_3 - C_6 oxathiacycloalkyl, C_1 - C_6 alkoxycarbonyl, C_1 - C_6 alkylcarbonyl, C_1 - C_6 alkoxycarbonyloxy, C_1 - C_6 alkylcarbonyloxy, C_1 - C_6 alkylthio, C_1 - C_6 alkylsulfonyl, C_1 - C_6 alkylsulfinyl, NR_9R_{10} , C_3 - C_6 cycloalkyl, $tri(C_1-C_6alkyl)silyl$, $tri(C_1-C_6alkyl)silyloxy$ or Ar_1 ;

or R_1 , R_2 , R_6 , R_7 , R_8 are each independently of the others a C_1 - C_6 alkyl, C_2 - C_6 alkenyl, C_2 - C_6 alkynyl or C_3 - C_6 cycloalkyl group, which may be interrupted by oxygen, sulfur, sulfonyl, sulfinyl, $-NR_{11}-$ or $-C(O)-$ and/or mono-, di- or tri-substituted by hydroxy, mercapto, NO_2 , cyano, halogen, formyl, C_1 - C_6 alkoxy, C_3 - C_6 alkenyloxy, C_3 - C_6 alkynyloxy, C_1 - C_6 haloalkoxy, C_1 - C_2 alkoxy- C_1 - C_2 alkoxy, C_1 - C_4 alkoxycarbonyloxy, C_1 - C_4 alkylcarbonyloxy, C_1 - C_4 alkoxycarbonyl, C_1 - C_4 alkylcarbonyl, C_1 - C_6 alkylthio, C_1 - C_6 alkylsulfinyl, C_1 - C_6 alkylsulfonyl, $NR_{12}R_{13}$, C_1 - C_6 alkyl, C_2 - C_6 alkenyl, C_2 - C_6 alkynyl, C_3 - C_6 cycloalkyl, $tri(C_1-C_6alkyl)silyl$, $tri(C_1-C_6alkyl)silyloxy$ or Ar_2 ;

or two substituents R_6 at the same carbon atom together form a $-CH_2O-$ or a C_2 - C_5 alkylene chain, which may be interrupted once or twice by oxygen, sulfur, sulfonyl or sulfinyl and/or mono- or poly-substituted by R_{6c} , with the proviso that two hetero atoms may not be located next to one another;

or two substituents R_6 at different carbon atoms together form an oxygen bridge or a C_1 - C_4 alkylene chain, which may in turn be substituted by R_{6c} ;

or R_7 and R_8 together form an oxygen bridge, a $-CH=CH-CH=CH-$ bridge or a C_3 - C_4 alkylene chain, which may be interrupted by oxygen or $-S(O)_{n1}-$ and/or mono- or poly-substituted by R_{6d} ;

Z_1 , Z_2 and Z_3 are each independently of the others C_1 - C_3 alkoxy- C_1 - C_3 alkyl-substituted C_3 - C_6 cycloalkyl, tri(C_1 - C_6 alkyl)silyl, tri(C_1 - C_6 alkyl)silyloxy or $CH=P(\text{phenyl})_3$;

or Z_1 , Z_2 and Z_3 are a C_1 - C_6 alkyl, C_2 - C_6 alkenyl or C_2 - C_6 alkynyl group, which is interrupted by oxygen, $-O(CO)-$, $-(CO)O-$, $-O(CO)O-$, $-N(R_{14})-O-$, $-O-NR_{15}-$, sulfur, sulfinyl, sulfonyl, $-SO_2NR_{16}-$, $-NR_{17}SO_2-$ or $-NR_{18}-$ and is mono- or poly-substituted by L_1 ;

L_1 is halogen, hydroxy, amino, formyl, nitro, cyano, mercapto, carbamoyl,

$P(O)(OC_1-C_6\text{alkyl})_2$, C_1 - C_6 alkoxy, C_1 - C_6 haloalkoxy, C_1 - C_6 alkoxycarbonyl, C_2 - C_6 alkenyl, C_2 - C_6 haloalkenyl, C_2 - C_6 alkynyl, C_2 - C_6 haloalkynyl, C_3 - C_6 cycloalkyl, halo-substituted C_3 - C_6 -cycloalkyl, C_3 - C_6 alkenyloxy, C_3 - C_6 alkynyloxy, C_3 - C_6 haloalkenyloxy, cyano- C_1 - C_6 alkoxy, C_1 - C_6 alkoxy- C_1 - C_6 alkoxy, C_1 - C_6 alkylthio- C_1 - C_6 alkoxy, C_1 - C_6 alkylsulfinyl- C_1 - C_6 alkoxy, C_1 - C_6 alkylsulfonyl- C_1 - C_6 alkoxy, C_1 - C_6 alkoxycarbonyl- C_1 - C_6 alkoxy, C_1 - C_6 alkylcarbonyloxy- C_1 - C_6 alkylcarbonyl, C_1 - C_6 alkylthio, C_1 - C_6 alkylsulfinyl, C_1 - C_6 alkylsulfonyl, C_1 - C_6 haloalkylthio, C_1 - C_6 haloalkylsulfinyl, C_1 - C_6 haloalkylsulfonyl or oxiranyl, which may in turn be substituted by C_1 - C_6 alkyl, C_1 - C_3 alkoxy or C_1 - C_3 alkoxy- C_1 - C_3 alkyl, or (3-oxetanyl)-oxy, which may in turn be substituted by C_1 - C_6 alkyl, C_1 - C_3 alkoxy or C_1 - C_3 alkoxy- C_1 - C_3 alkyl, or benzoyloxy, benzyloxy, benzylthio, benzylsulfinyl, benzylsulfonyl, C_1 - C_6 alkylamino, di(C_1 - C_6 alkyl)amino, $R_{19}S(O)_2O$, $R_{20}N(R_{21})SO_2-$, rhodano, phenyl, phenoxy, phenylthio, phenylsulfinyl, phenylsulfonyl or Ar_4 , it being possible for the phenyl-containing groups in turn to be substituted by one or more C_1 - C_3 alkyl, C_1 - C_3 haloalkyl, C_1 - C_3 alkoxy, C_1 - C_3 haloalkoxy, halogen, cyano, hydroxy or nitro groups;

or, when R_1 and R_2 are hydrogen, methyl, halogen or C_1 - C_3 alkoxycarbonyl and at the same time Y is other than C_1 - C_2 alkylene which may be substituted by hydrogen, halogen or methyl, or is other than oxygen, sulfur, sulfonyl, sulfinyl, $C(O)$ or NR_{4a} wherein R_{4a} is hydrogen, C_1 - C_4 alkyl, formyl or C_1 - C_4 alkylcarbonyl,

L_1 may additionally be hydrogen and Z_1 , Z_2 and Z_3 may additionally be hydrogen, hydroxy, mercapto, NO_2 , cyano, halogen, formyl, C_1 - C_6 alkyl, C_1 - C_6 haloalkyl, C_2 - C_6 alkenyl, C_2 - C_6 haloalkenyl, C_2 - C_6 alkynyl, C_2 - C_6 haloalkynyl, C_1 - C_6 alkoxy, C_1 - C_6 haloalkoxy, C_1 - C_6 alkoxycarbonyl, C_1 - C_6 alkylcarbonyl, C_1 - C_6 alkylthio, C_1 - C_6 alkylsulfonyl, C_1 - C_6 alkylsulfinyl, $NR_{22}R_{23}$, phenyl which may be mono- or poly-substituted by C_1 - C_3 alkyl, C_1 - C_3 haloalkyl, C_1 - C_3 alkoxy, C_1 - C_3 haloalkoxy, halogen, cyano, hydroxy or nitro, or C_3 - C_6 cycloalkyl, C_3 - C_6 cycloalkyl substituted by C_1 - C_3 alkoxy, C_1 - C_3 alkoxy- C_1 - C_3 alkyl or C_1 - C_6 alkyl, 3-oxetanyl, 3-oxetanyl substituted by C_1 - C_3 alkoxy, C_1 - C_3 alkoxy- C_1 - C_3 alkyl or C_1 - C_6 alkyl; or Ar_5 , $O-Ar_6$, $N(R_{24})Ar_7$ or $S(O)n_8Ar_8$;

R_9 , R_{11} , R_{13} , R_{23} , R_{16} , R_{17} , R_{18} , R_{20} and R_{24} are each independently of the others hydrogen, C_1 - C_6 alkyl, C_1 - C_6 haloalkyl, C_1 - C_6 alkylcarbonyl, C_1 - C_6 alkoxycarbonyl, C_1 - C_6 alkylsulfonyl, phenyl, it being possible for the phenyl group in turn to be mono- or poly-substituted by

C₁-C₆alkyl, C₁-C₆haloalkyl, C₁-C₆alkoxy, C₁-C₆haloalkoxy, halogen, cyano, hydroxy or nitro, or Ar₉;

R_{6a} and R_{6b} are each independently of the other hydrogen or C₁-C₆alkyl; or R_{6a} and R_{6b} together are a C₂-C₅alkylene chain;

R_{6c}, R₁₄, R₁₅, R₁₉ and R₂₁ are each independently of the others C₁-C₆alkyl or C₁-C₆haloalkyl;

R_{6d}, R₁₀, R₁₂ and R₂₂ are each independently of the others hydrogen or C₁-C₆alkyl;

Ar₁, Ar₂, Ar₃, Ar₄, Ar₅, Ar₆, Ar₇, Ar₈ and Ar₉ are each independently of the others a five- to ten-membered, monocyclic or fused bicyclic ring system, which may be aromatic, partially saturated or fully saturated and may contain from 1 to 4 hetero atoms selected from nitrogen, oxygen, sulfur, C(O) and C(=NR₂₅), and each ring system contains not more than two oxygen atoms and not more than two sulfur atoms, and each ring system may itself be mono- or poly-substituted by C₁-C₆alkyl, C₁-C₆haloalkyl, C₂-C₆alkenyl, C₂-C₆haloalkenyl, C₂-C₆alkynyl, C₂-C₆haloalkynyl, C₁-C₆alkoxy, C₁-C₆haloalkoxy, C₃-C₆alkenyloxy, C₃-C₆alkynyloxy, mercapto, amino, hydroxy, C₁-C₆alkylthio, C₁-C₆haloalkylthio, C₃-C₆alkenylthio, C₃-C₆haloalkenylthio, C₃-C₆alkynylthio, C₁-C₃alkoxy-C₁-C₃alkylthio, C₁-C₄alkylcarbonyl-C₁-C₃alkylthio, C₁-C₄alkoxycarbonyl-C₁-C₃alkylthio, cyano-C₁-C₃alkylthio, C₁-C₆alkylsulfinyl, C₁-C₆haloalkylsulfinyl, C₁-C₆alkylsulfonyl, C₁-C₆haloalkylsulfonyl, aminosulfonyl, C₁-C₂alkylamino-sulfonyl, N,N-di(C₁-C₂alkyl)aminosulfonyl, di(C₁-C₄alkyl)amino, halogen, cyano, nitro or phenyl, it being possible for the phenyl group in turn to be substituted by hydroxy, C₁-C₆alkylthio, C₁-C₆haloalkylthio, C₃-C₆alkenylthio, C₃-C₆haloalkenylthio, C₃-C₆alkynylthio, C₁-C₃alkoxy-C₁-C₃alkylthio, C₁-C₄alkylcarbonyl-C₁-C₃alkylthio, C₁-C₄alkoxycarbonyl-C₁-C₃alkylthio, cyano-C₁-C₃alkylthio, C₁-C₆alkylsulfinyl, C₁-C₆haloalkylsulfinyl, C₁-C₆alkylsulfonyl, C₁-C₆haloalkylsulfonyl, aminosulfonyl, C₁-C₂alkylaminosulfonyl, N,N-di(C₁-C₂alkyl)aminosulfonyl, di(C₁-C₄alkyl)amino, halogen, cyano or nitro, and the substituents at the nitrogen atom in the heterocyclic ring being other than halogen.

Special mention should be made of compounds of formula I wherein L₁ is hydrogen only when Z₁, Z₂ and Z₃ are a C₁-C₆alkyl group which is interrupted by -O(CO)-, -(CO)O-, -N(R₁₄)O-, -ONR₁₅-, -SO₂NR₁₆-, -NR₁₇SO₂- or -NR₁₈-, or is a C₂-C₆alkenyl or C₂-C₆alkynyl group which is interrupted by oxygen, -O(CO)-, -(CO)O-, -O(CO)O-, -N(R₁₄)O-, -ONR₁₅-, sulfur, sulfinyl, sulfonyl, -SO₂NR₁₆-, -NR₁₇SO₂- or -NR₁₈-; and when, further, either R₁ and R₂ are hydrogen or methyl, or R₁ is halogen or R₂ is C₁-C₃alkoxycarbonyl, and at the same time Y is other than C₁-C₂alkylene which may be substituted by halogen or methyl, or Y is other than oxygen, sulfur, sulfonyl, sulfinyl, C(O) or NR_{4a} wherein R_{4a} is hydrogen, C₁-C₄alkyl, formyl or C₁-C₄alkylcarbonyl.

An outstanding group of compounds of formula I comprises those compounds wherein Z_1 , Z_2 , Z_3 are C_1 - C_3 alkylene which is substituted by the following substituents: halogen, hydroxy, amino, formyl, nitro, cyano, mercapto, carbamoyl, $P(O)(OC_1-C_6alkyl)_2$, $C_1-C_6alkoxy$, $C_1-C_6haloalkoxy$, $C_1-C_6alkoxycarbonyl$, $C_2-C_6alkenyl$, $C_2-C_6haloalkenyl$, $C_2-C_6alkynyl$, $C_2-C_6haloalkynyl$, $C_3-C_6cycloalkyl$, halo-substituted $C_3-C_6cycloalkyl$, $C_3-C_6alkenyloxy$, $C_3-C_6alkynyloxy$, $C_3-C_6haloalkenyloxy$, cyano- $C_1-C_6alkoxy$, $C_1-C_6alkoxy-C_1-C_6alkoxy$, $C_1-C_6alkylthio-C_1-C_6alkoxy$, $C_1-C_6alkylsulfinyl-C_1-C_6alkoxy$, $C_1-C_6alkylsulfonyl-C_1-C_6alkoxy$, $C_1-C_6alkoxycarbonyl-C_1-C_6alkoxy$, $C_1-C_6alkylcarbonyloxy$, $C_1-C_6alkylcarbonyl$, $C_1-C_6alkylthio$, $C_1-C_6alkylsulfinyl$, $C_1-C_6alkylsulfonyl$, $C_1-C_6haloalkylthio$, $C_1-C_6haloalkylsulfinyl$, $C_1-C_6haloalkylsulfonyl$ or oxiranyl, which may in turn be substituted by C_1-C_3alkyl , $C_1-C_3alkoxy$ or $C_1-C_3alkoxy-C_1-C_3alkyl$, or (3-oxetanyl)-oxy, which may in turn be substituted by C_1-C_6alkyl , $C_1-C_3alkoxy$ or $C_1-C_3alkoxy-C_1-C_3alkyl$, or benzyloxy, benzyloxy, benzylthio, benzylsulfinyl, benzylsulfonyl, $C_1-C_6alkylamino$, $di(C_1-C_6alkyl)amino$, $R_{19}S(O)_2O$, $R_{20}N(R_{21})SO_2$, rhodano, phenyl, phenoxy, phenylthio, phenylsulfinyl, phenylsulfonyl or Ar_4 , it being possible for the phenyl-containing groups in turn to be substituted by one or more C_1-C_3alkyl , $C_1-C_3haloalkyl$, $C_1-C_3alkoxy$, $C_1-C_3haloalkoxy$, halogen, cyano, hydroxy or nitro groups; or, when R_1 and R_2 are hydrogen, methyl, halogen or $C_1-C_3alkoxycarbonyl$ and at the same time Y is other than $C_1-C_2alkylene$ which may be substituted by halogen or methyl, or is other than oxygen, sulfur, sulfonyl, sulfinyl, $C(O)$ or NR_{4a} wherein R_{4a} is hydrogen, C_1-C_4alkyl , formyl or $C_1-C_4alkylcarbonyl$,

L_1 may additionally be hydrogen and Z_1 , Z_2 and Z_3 may additionally be hydrogen, hydroxy, mercapto, NO_2 , cyano, halogen, formyl, C_1-C_6alkyl , $C_1-C_6haloalkyl$, $C_2-C_6alkenyl$, $C_2-C_6haloalkenyl$, $C_2-C_6alkynyl$, $C_2-C_6haloalkynyl$, $C_1-C_6alkoxy$, $C_1-C_6haloalkoxy$, $C_1-C_6alkoxycarbonyl$, $C_1-C_6alkylcarbonyl$, $C_1-C_6alkylthio$, $C_1-C_6alkylsulfonyl$, $C_1-C_6alkylsulfinyl$, $NR_{22}R_{23}$, phenyl which may be mono- or poly-substituted by C_1-C_3alkyl , $C_1-C_3haloalkyl$, $C_1-C_3alkoxy$, $C_1-C_3haloalkoxy$, halogen, cyano, hydroxy or nitro, or $C_3-C_6cycloalkyl$, $C_3-C_6cycloalkyl$ substituted by $C_1-C_3alkoxy$, $C_1-C_3alkoxy-C_1-C_3alkyl$ or C_1-C_3alkyl , 3-oxetanyl, 3-oxetanyl substituted by $C_1-C_3alkoxy$, $C_1-C_3alkoxy-C_1-C_3alkyl$ or C_1-C_6alkyl , or Ar_5 , $O-Ar_6$, $N(R_{24})Ar_7$ or $S(O)n_6Ar_8$.

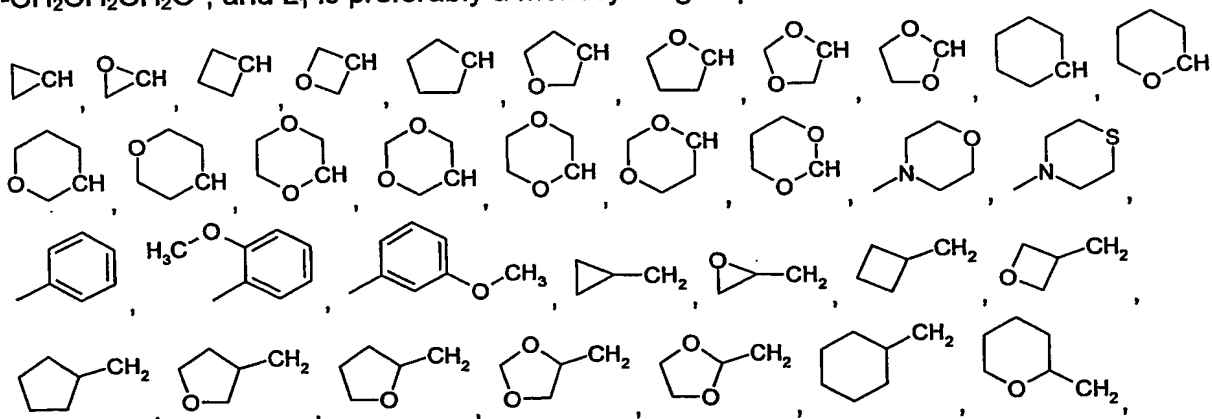
Preferred compounds of formula I are those wherein p is 0. Preferably at least one group Z_1 , Z_2 or Z_3 is in the ortho-position relative to the carbonyl group; in preferred compounds, in addition, m_1 , m_2 and m_3 are the number 1. Also preferred are compounds of formula I wherein Q is a group Q_1 or Q_2 , especially the group Q_1 .

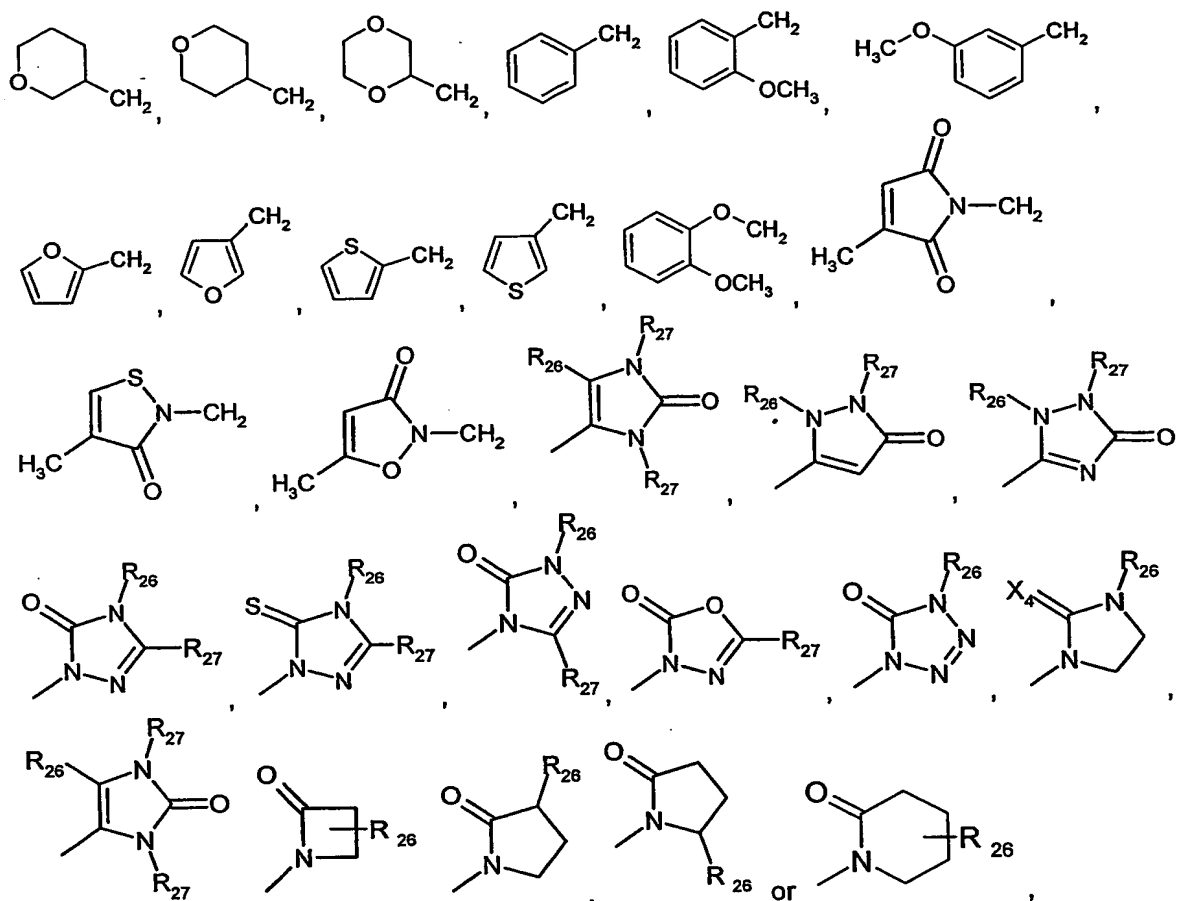
Also preferred are those compounds of formula I wherein Y is oxygen, $NCO_2methyl$, NSO_2CH_3 , $NC(O)CH_3$, sulfur, sulfinyl, sulfonyl, $C(O)$ or a $C_1-C_2alkylene$ chain. Outstanding

compounds are those wherein Y is a C₁-C₂alkylene chain or oxygen, and wherein A₁ is CR₇, A₂ is CR₈ and R₁, R₂, R₆, R₇, R₈ are each independently of the others hydrogen or methyl, especially Y is methylene or ethylene and R₁, R₂, R₆, R₇, R₈ are each hydrogen.

Especially interesting compounds of formula I are those wherein Z₁ is C₁-C₃alkylene which may be interrupted by oxygen, especially a bidentate group of form -CH₂-, -CH₂CH₂-, -OCH₂-, -OCH₂CH₂-, -CH₂O-, -CH₂CH₂O-, -CH₂OCH₂- or -CH₂CH₂CH₂O-, and L₁ is preferably hydrogen, halogen, cyano, C₁-C₆alkyl, C₂-C₆alkenyl, C₂-C₆haloalkenyl, C₂-C₆alkynyl, C₂-C₆haloalkynyl, C₁-C₆alkoxy, C₁-C₆haloalkoxy, C₁-C₆alkoxy-C₁-C₆alkoxy. Especially preferred are compounds of formula I wherein Z₁ or Z₁-L₁ is CH₃, CH₂CH₃, CH₂CH₂CH₃, CHC(CH₃)₂, CH₂OCH₂CH₂OCH₃, CH₂OCH₂CH₂OCH₂CH₃, CH₂OCH₃, CH₂OCH₂CH₃, CH₂OCH(CH₃)₂, CH₂OCH₂CF₃, CH₂OCH₂CH=CH₂, CH₂OCH₂CCH, CH₂OCH₂CCCH₃, CH₂OCH₂CH₂CCH, CH₂OCH₂CN, CH₂OCH₂C₂CN, CH₂OCH₂CH₂CH₂OCH₃, CH₂OCH₂CH₂OCH₂CH₂OCH₃, CH₂OCH₂CH₂CH₂OCF₃, CH₂CH₂OCH₃, CH₂CH₂OCH₂CH₃, CH₂CH₂CH₂OCH₃, CH₂CH₂CH₂OCH₂CH₃ or CH₂CH₂OCH₂CH₂OCH₃, more especially CH₃, CH₂CH₂CH₂OCH₃ or CH₂OCH₂CH₂OCH₃, especially prominent compounds being those wherein Y is methylene, ethylene or oxygen, A₁ is CR₇, A₂ is CR₈ and R₁, R₂, R₆, R₇, R₈ are each independently of the others hydrogen or methyl. Of that group, preference is given to those compounds wherein Q is Q₁, p₁ is 0 and m₁ is 1, the group (Z₁)m₁ is in the ortho-position relative to the carbonyl group, and R₃ is hydroxy.

Special emphasis should also be given to compounds of formula I wherein Q is Q₁, Z₁ is C₁-C₃alkylene which may be interrupted by oxygen, Z₁ being especially a bidentate group of form -CH₂-, -CH₂CH₂-, -OCH₂-, -OCH₂CH₂-, -CH₂O-, -CH₂CH₂O-, -CH₂OCH₂- or -CH₂CH₂CH₂O-, and L₁ is preferably a monocyclic group



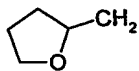


wherein R₂₆ is hydrogen or methyl, R₂₇ is hydrogen, C₁-C₃alkyl, C₁-C₃alkoxy, C₁-C₃alkylthio or trifluoromethyl and X₄ is oxygen or sulfur.

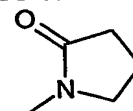
Where no free valency is indicated in those preferred definitions of L_1 , for example as in



, the linkage site is located at the carbon atom labelled "CH" or in the case of



at the carbon atom labelled "CH₂" or in a case such as, for example,



at the bonding site indicated at the bottom left.

In a further preferred group of compounds of formula I, X₁, X₂ and X₃ are C₁-C₃haloalkyl, especially CF₃, CF₂CF₃, CF₂Cl or CF₂H, more especially CF₃ or CF₂H.

An especially preferred group of compounds of formula I comprises those compounds wherein

- 19 -

Y is oxygen, C(=CR_{6a}R_{6b}) or a C₁-C₄alkylene chain which may be mono- or poly-substituted by R₆;

A₁ is CR₇;

A₂ is CR₈;

R₁, R₂, R₆, R_{6a}, R_{6b}, R₇ and R₈ are each independently of the others hydrogen, C₁-C₆alkyl or C₁-C₆alkoxycarbonyl;

or two substituents R₆ at the same carbon atom together form a C₂-C₅alkylene chain;

R₃ is hydroxy;

Q is the radical Q₁;

p₁ is 0;

m₁ is 1;

X₁ is C₁-C₆haloalkyl;

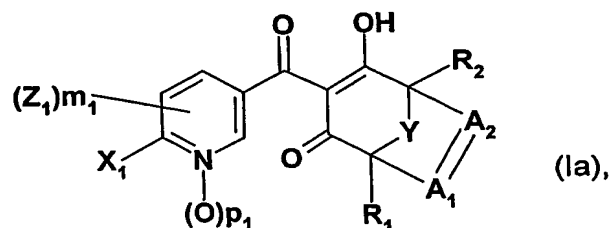
Z₁ is a C₁-C₆alkyl group which is interrupted by oxygen and is mono- or poly-substituted by L₁; it also being possible for L₁ to be bonded at the terminal carbon atom of the C₁-C₆alkyl group;

or Z₁ is C₁-C₆alkyl;

and L₁ is C₁-C₆alkoxy;

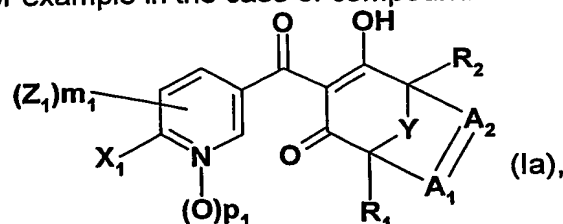
and agronomically acceptable salts/isomers/enantiomers/tautomers of those compounds.

The compounds of formula I can be prepared by means of processes known *per se*, e.g. as described in WO/0039094, as indicated below with reference to the examples of compounds of formula Ia



wherein R₁, R₂, A₁, A₂, Y, X₁, Z₁, m₁ and p₁ are as defined above.

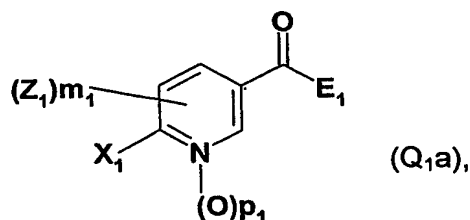
In a preferred process, for example in the case of compounds of formula Ia



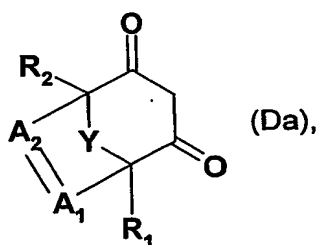
- 20 -

wherein R_1 , R_2 , A_1 , A_2 and Y are as defined above and Q is a group Q_1 ,

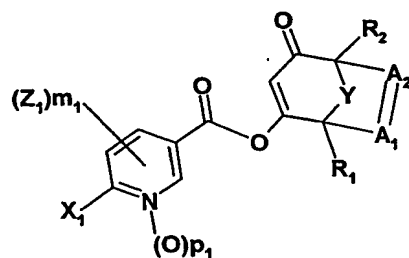
a) a compound of formula Q_{1a}



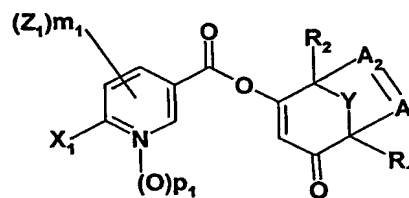
wherein Z_1 , m_1 , X_1 and p_1 are as defined above and E_1 is a leaving group, for example halogen or cyano, is reacted in an inert organic solvent, in the presence of a base, with a compound of formula Da



wherein Y , R_1 , R_2 , A_2 and A_1 are as defined for formula I, to form compound(s) of formula IIa and/or IIb



IIa



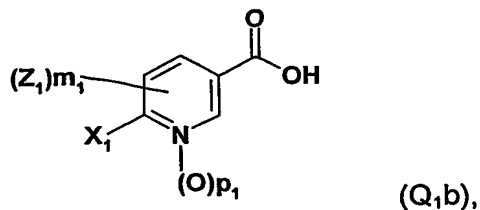
IIb

and the latter is(are) then isomerised, for example in the presence of a base and a catalytic amount of an acylating agent, for example dimethylaminopyridine (DMAP), or a cyanide source, e.g. acetone cyanohydrin, potassium cyanide or trimethylsilyl cyanide;

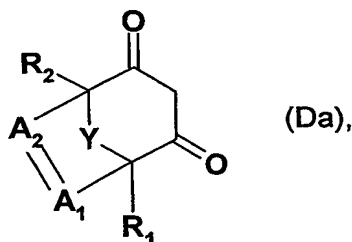
or

b) a compound of formula Q_{1b}

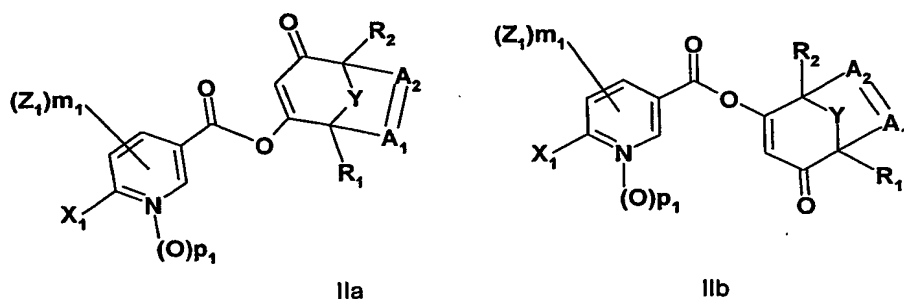
- 21 -



wherein Z₁, m₁, p₁ and X₁ are as defined for formula I, is reacted with a compound of formula Da

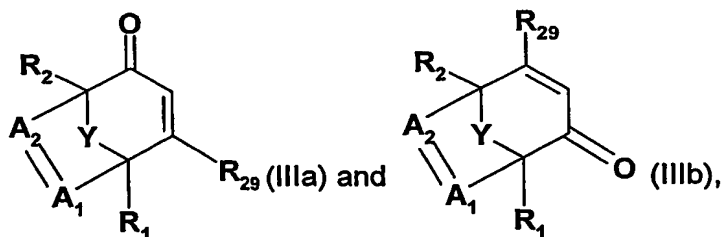


wherein Y, R₁, R₂, A₁ and A₂ are as defined for formula I, in an inert organic solvent, in the presence of a base and a coupling reagent, to form compound(s) of formula IIa and/or IIb



and the latter is(are) then isomerised, for example as described under Route a).

The intermediates of formulae Da, IIa and IIb are novel and have been developed especially for the preparation of the compounds of formula I. The present invention therefore relates also thereto. The novel intermediates of formulae Da, IIa, IIb correspond, in summary, to the general formulae IIIa and IIIb

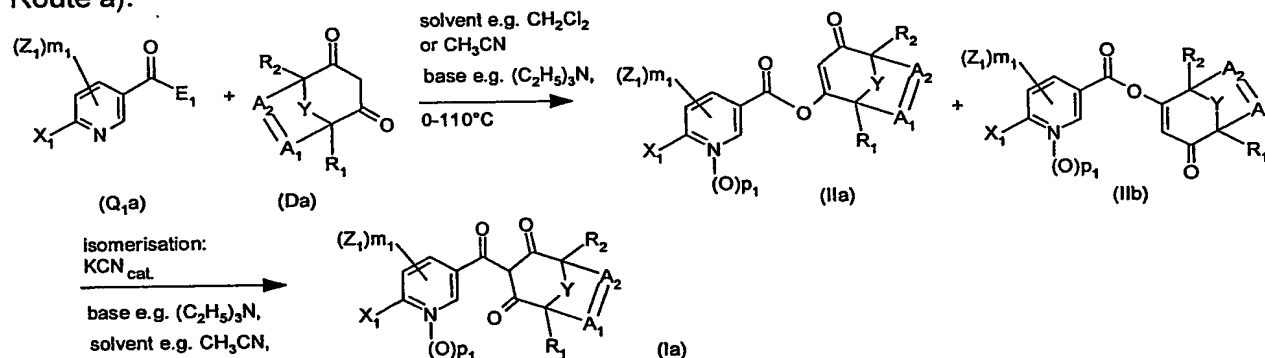


wherein R_1 , R_2 , Y , A_1 and A_2 are as defined above and R_{29} is OH or OC(O)Q wherein Q is as defined for formula I.

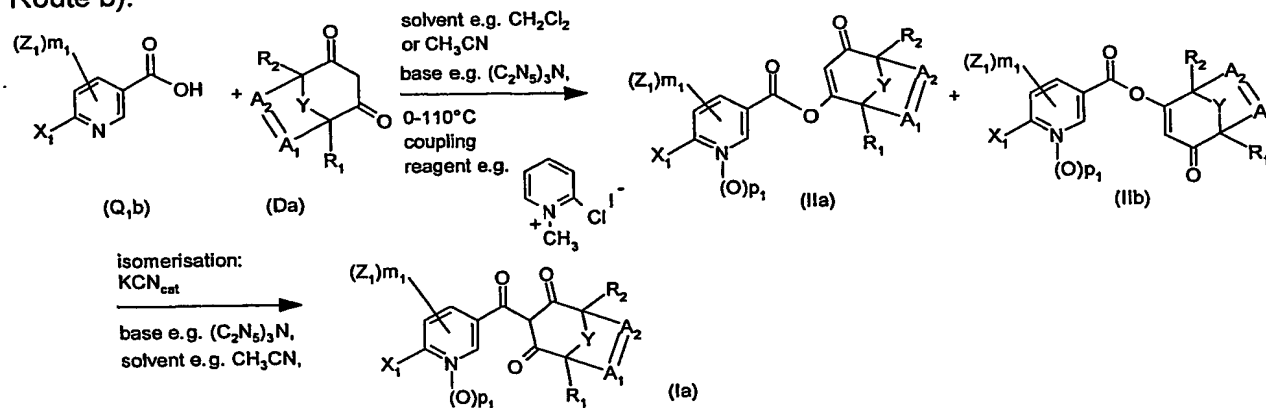
The preparation of the compounds of formula I is illustrated in greater detail in the following Reaction Schemes.

Reaction Scheme 1

Route a):



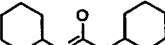
Route b):

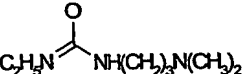


According to Reaction Scheme 1 it is preferable to prepare the compounds of formula I having the group Q_1 , Q_2 and Q_3 wherein R_3 is hydroxy and p_1 , p_2 and p_3 are 0.

Compounds of formula I wherein p_1 , p_2 and p_3 are 1, that is to say the corresponding N-oxides of formula I, can be prepared by reacting a compound of formula I wherein p_1 , p_2 and p_3 are 0 with a suitable oxidising agent, for example with the H_2O_2 -urea adduct in the

presence of an acid anhydride, e.g. trifluoroacetic anhydride. Such oxidations are known in the literature, for example from *J. Med. Chem.*, 32 (12), 2561-73, 1989 or WO 00/15615.

For the preparation of the compounds of formula I wherein Q is the groups Q₁, Q₂ and Q₃ and R₃ is hydroxy, for example in accordance with Reaction Scheme 1, Route a), the carboxylic acid derivatives of formula Q₁a wherein E₁ is a leaving group, e.g. halogen, for example iodine, bromine and especially chlorine, N-oxyphthalimide or N,O-dimethylhydroxylamino, or part of an activated ester, e.g.  (formed from dicyclohexylcarbo-

diimide (DCC) and the corresponding carboxylic acid) or  (formed from N-

ethyl-N'-(3-dimethylaminopropyl)-carbodiimide (EDC) and the corresponding carboxylic acid) are used as starting materials. They are reacted in an inert, organic solvent, e.g. a halogenated hydrocarbon, for example dichloromethane, a nitrile, for example acetonitrile, or an aromatic hydrocarbon, for example toluene, and in the presence of a base, e.g. an alkylamine, for example triethylamine, an aromatic amine, for example pyridine or 4-dimethylaminopyridine (DMAP), with the dione derivatives of formula Da to form the isomeric enol esters of formula IIa or IIb. That esterification can be carried out at temperatures of from 0°C to 110°C.

The isomerisation of the enol ester derivatives of formulae IIa and IIb to form the derivatives of formula I wherein R₃ is hydroxy can be carried out, for example, analogously to EP-A-0 353 187, EP-A-0 316 491 or WO 97/46530 in the presence of a base, e.g. an alkylamine, for example triethylamine, a carbonate, for example potassium carbonate, and a catalytic amount of DMAP or a catalytic amount of a cyanide source, for example acetone cyanohydrin, potassium cyanide or trimethylsilyl cyanide. The two reaction steps can be carried out *in situ*, especially when a cyanide compound of formula Q₁a (E₁ = cyano) is used, or in the presence of a catalytic amount of acetone cyanohydrin or potassium cyanide, without isolation of the intermediates IIa and IIb.

According to Reaction Scheme 1, Route b), the desired derivatives of formula I wherein R₃ is hydroxy can be obtained e.g. analogously to E. Haslem, *Tetrahedron*, 2409-2433, 36, 1980 by first preparing enol esters of formula IIa and/or IIb by means of esterification of the carboxylic acids of formula Q₁b with the dione derivatives of formula Da in an inert solvent, for example a halogenated hydrocarbon, for example dichloromethane, a nitrile, for example acetonitrile, or an aromatic hydrocarbon, for example toluene, in the presence of a base, e.g.

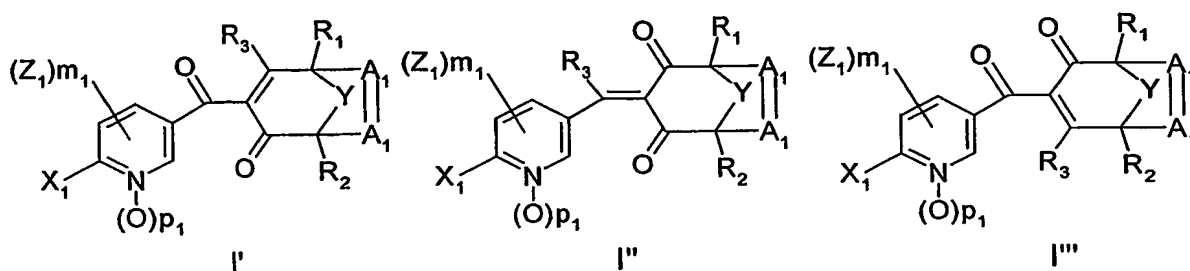
an alkylamine, for example triethylamine, and a coupling agent, for example 2-chloro-1-methyl-pyridinium iodide, which enol esters are then converted *in situ* or in a second step into the compounds of formula I. That reaction takes place, depending upon the solvent used, at temperatures of from 0°C to 110°C and yields first, as described under Route a), the isomeric esters of formulae IIa and IIb, which can be isomerised to the desired derivatives of formula I (R_3 = hydroxy) as described under Route a), for example in the presence of a base and a catalytic amount of DMAP, or a cyanide source, e.g. acetone cyanohydrin.

The activated carboxylic acid derivatives of formula Q_1a in Reaction Scheme 1 (Route a) wherein E_1 is a leaving group, e.g. halogen, for example bromine, iodine or especially chlorine, can be prepared according to known standard methods, as described e.g. in C. Ferri "Reaktionen der organischen Synthese", Georg Thieme Verlag, Stuttgart, 1978, page 460 ff.. Such reactions are generally known and various variations in respect of the leaving group E_1 are described in the literature.

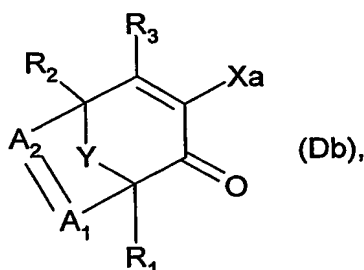
Compounds of formula I wherein R_3 is other than hydroxy or halogen can be prepared in accordance with conversion reactions generally known from the literature by nucleophilic substitution reactions on chlorides of formula I wherein R_3 is chlorine, which are readily obtainable from compounds of formula I wherein R_3 is hydroxy, likewise in accordance with known processes, by reaction with a chlorinating agent, such as phosgene, thionyl chloride or oxalyl chloride. In such a reaction there are used, for example, mercaptans, thiophenols or heterocyclic thiols in the presence of a base, for example 5-ethyl-2-methylpyridine, diisopropyl-ethylamine, triethylamine, sodium hydrogen carbonate, sodium acetate or potassium carbonate.

Compounds of formula I wherein the substituent R_3 contains thio groups can be oxidised to the corresponding sulfones and sulfoxides of formula I analogously to known standard methods, e.g. with peracids, for example meta-chloroperbenzoic acid (m-CPBA) or peracetic acid. In that reaction the degree of oxidation at the sulfur atom (SO - or SO_2 -) can be controlled by the amount of oxidising agent. Other sulfur-containing groups, for example those in the meanings of R_1 , R_2 , R_6 , R_7 , R_8 , L_1 , X_1 , X_2 , X_3 or Y , or in alkyl groups and chains interrupted by sulfur, as may occur, for example, in Z_1 , Z_2 and Z_3 , can be oxidised with a suitable oxidising agent, such as m-CPBA or sodium periodate, to the corresponding sulfone and sulfine (sulfoxido) groups directly in compounds of formula I, as well as in intermediates of formulae IIa, IIb, Da and Db (hereinbelow).

The derivatives of formula I so obtained wherein R_3 is other than hydroxy can also be in various isomeric forms, which can optionally be isolated in pure form. The invention therefore includes all those stereoisomeric forms. Examples of those isomeric forms are the following formulae I', I'' and I''', as shown with reference to compounds of formula I wherein Q is group Q_1 .



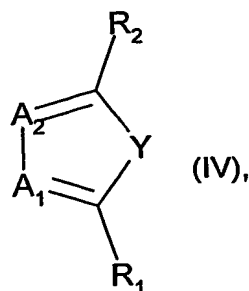
The compounds of formula Da used as starting materials can be prepared, for example, by treating a compound of formula Db



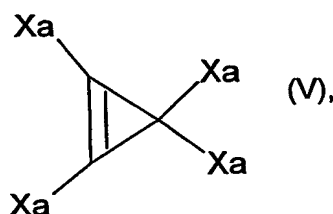
wherein A_1 , A_2 , R_1 , R_2 and Y are as defined for formula I, X_a is chlorine or bromine and R_3 is hydroxy or C_1 - C_6 alkoxy, in the presence of a suitable reducing agent, e.g. tributyltin hydride, or zinc in acetic acid, optionally followed, when R_3 is C_1 - C_6 alkoxy, by aftertreatment in the presence of a hydrolysing agent, e.g. dilute hydrochloric acid or aqueous p-toluenesulfonic acid.

Specifically the compounds of formula Db above wherein R_1 and R_2 are each hydrogen or methyl, A_1 and A_2 are each methylene, Y is oxygen, methylene or ethylene, R_3 is chlorine, bromine or hydroxy and X_a is chlorine or bromine are known from Organic Letters 2002, 4, 1997; Archiv der Pharmazie 1987, 320, 1138; J. Amer. Chem. Soc. 1968, 90 2376 and from US-A-3 538 117 and can be prepared in accordance with the methods described therein.

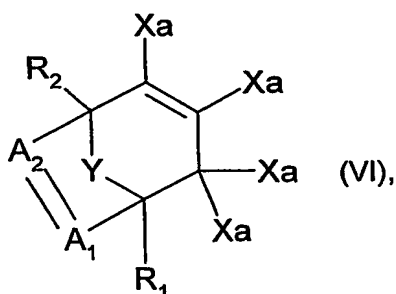
The compounds of formula Da used as starting materials can accordingly also be prepared very generally in accordance with those known methods, by reacting a dienophilic compound of formula IV



wherein A_1 , A_2 , R_1 , R_2 and Y are as defined above, in an inert solvent, such as dichloromethane, 1,2-dichloroethane, toluene or chlorobenzene, optionally at elevated temperature or under elevated pressure, in a reaction similar to a Diels-Alder reaction, with a tetrahalo-cyclopropene of formula V

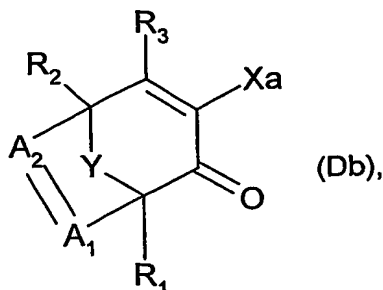


wherein Xa is chlorine or bromine, and then hydrolysing the resulting bicyclic compound of formula VI

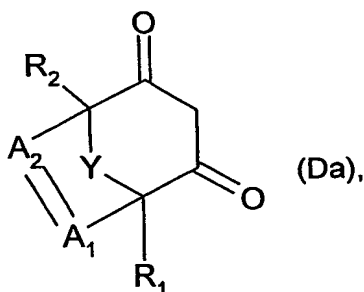


wherein A_1 , A_2 , R_1 , R_2 , Xa and Y are as defined above, optionally in the presence of a suitable catalyst, for example silver nitrate or the silver tetrafluoroborate salt, or an acid, such as 90-98% sulfuric acid, 90% trifluoroacetic acid or p-toluenesulfonic acid, or reacting it with an alcoholate, for example sodium methanolate, potassium ethanolate or lithium isopropanolate, in order thus to obtain a compound of formula Db

- 27 -



wherein A_1 , A_2 , R_1 , R_2 , Xa and Y are as defined above, and R_3 depending upon the reaction conditions is either hydroxy, C_1 - C_6 alkoxy, chlorine or bromine, which is then further reduced and/or hydrolysed to form a novel compound of formula Da



wherein A_1 , A_2 , R_1 , R_2 and Y are as defined above.

Compounds of formula VI can thus be reacted further, for example in the presence of 90-98% sulfuric acid at elevated temperature of about 80-100°C, to form compounds of formula Db wherein R_3 is hydroxy and Xa is chlorine or bromine, as described in greater detail in J. Amer. Chem. Soc. 1968, 90, 2376.

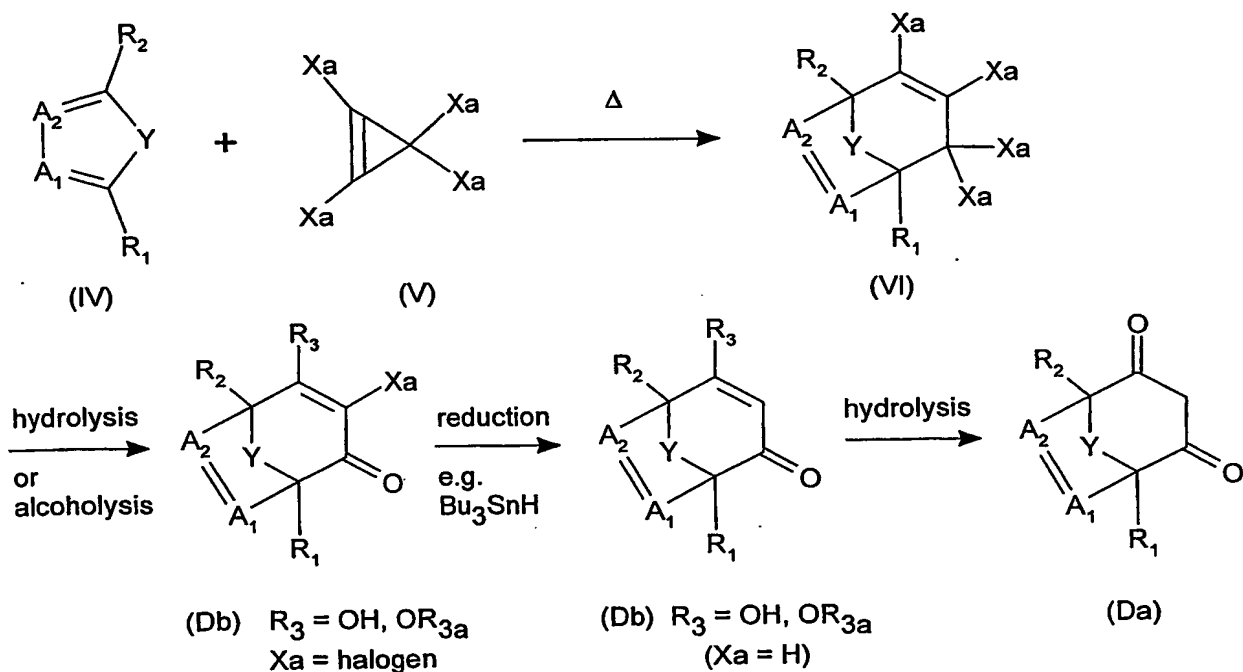
It is also possible for compounds of formula VI to be converted into compounds of formula Db wherein R_3 and Xa are both chlorine or bromine, for example in the presence of 90% trifluoroacetic acid at boiling temperature or in the presence of aqueous silver nitrate at ambient temperature, as described in Archiv der Pharmazie 1987, 320, 1138 and in Organic Letters 2002, 4, 1997.

On the other hand, compounds of formula VI can be converted into compounds of formula Db wherein R_3 is C_1 - C_6 alkoxy and Xa is chlorine or bromine in good yields at ambient temperature in the presence of alcoholates of formula $R_{3a}O^-M^+$ wherein R_{3a} is accordingly C_1 - C_6 alkyl and M^+ is an alkali metal salt, in a solvent, such as an alcohol $R_{3a}OH$, toluene or ether, e.g. tetrahydrofuran, dimethoxyethane.

It is also possible for compounds of formula Db wherein Xa is chlorine or bromine and R₃ is hydroxy or C₁-C₆alkoxy to be reduced in the presence of reducing agents, e.g. tributyltin hydride, in an organic solvent, such as toluene or tetrahydrofuran, to form compounds of formula Db wherein Xa is hydrogen, as is well known according to general methods from the literature for the reduction of a halogen in a position adjacent to a carbonyl group (see e.g. *Comprehensive Org. Funct. Group. Transformations*, Vol. 1. ed. S.M. Roberts, Pergamon Press Oxford, 1995, pages 1-11).

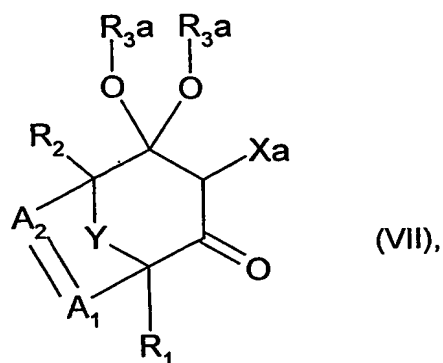
Finally, compounds of formula Db wherein R₃ is C₁-C₆alkoxy, chlorine or bromine and Xa is hydrogen can be hydrolysed to compounds of formula Da in the presence of acids, e.g. dilute hydrochloric acid, dilute sulfuric acid or p-toluenesulfonic acid.

The general reaction sequences for the preparation of compounds of formulae Da and Db from compounds of formulae IV and V via intermediates of formula VI are shown in the following Scheme.

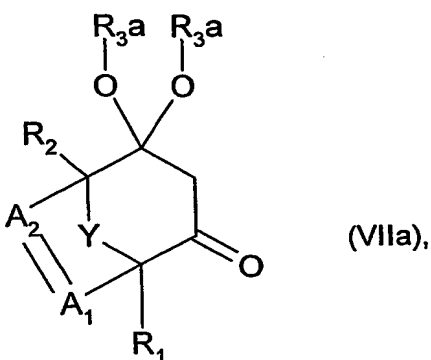


In the reaction of compounds of formula VI and/or Db wherein A₁, A₂, R₁, R₂, Xa and Y are as defined above and R₃ is C₁-C₆alkoxy with alcoholates of formula R_{3a}O⁻M⁺, it is also possible for compounds of formula VII to be formed

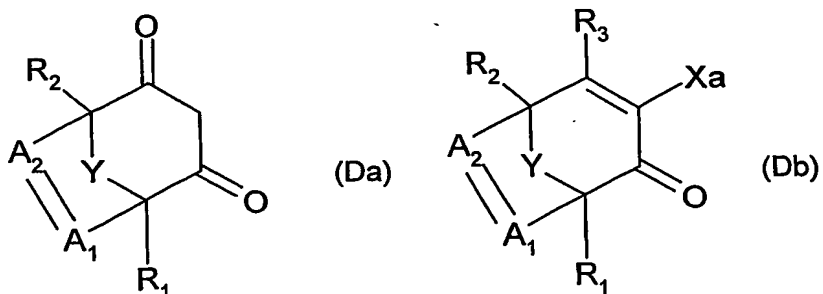
- 29 -



wherein A₁, A₂, R₁, R₂, Xa and Y are as defined above and R_{3a} is C₁-C₆alkyl or, when glycol is used, two R_{3a} together are -CH₂CH₂-. Those compounds too can be reacted under the reduction conditions mentioned above, for example with tributyltin hydride or with zinc in the presence of acetic acid, by way of a compound of formula VIIa

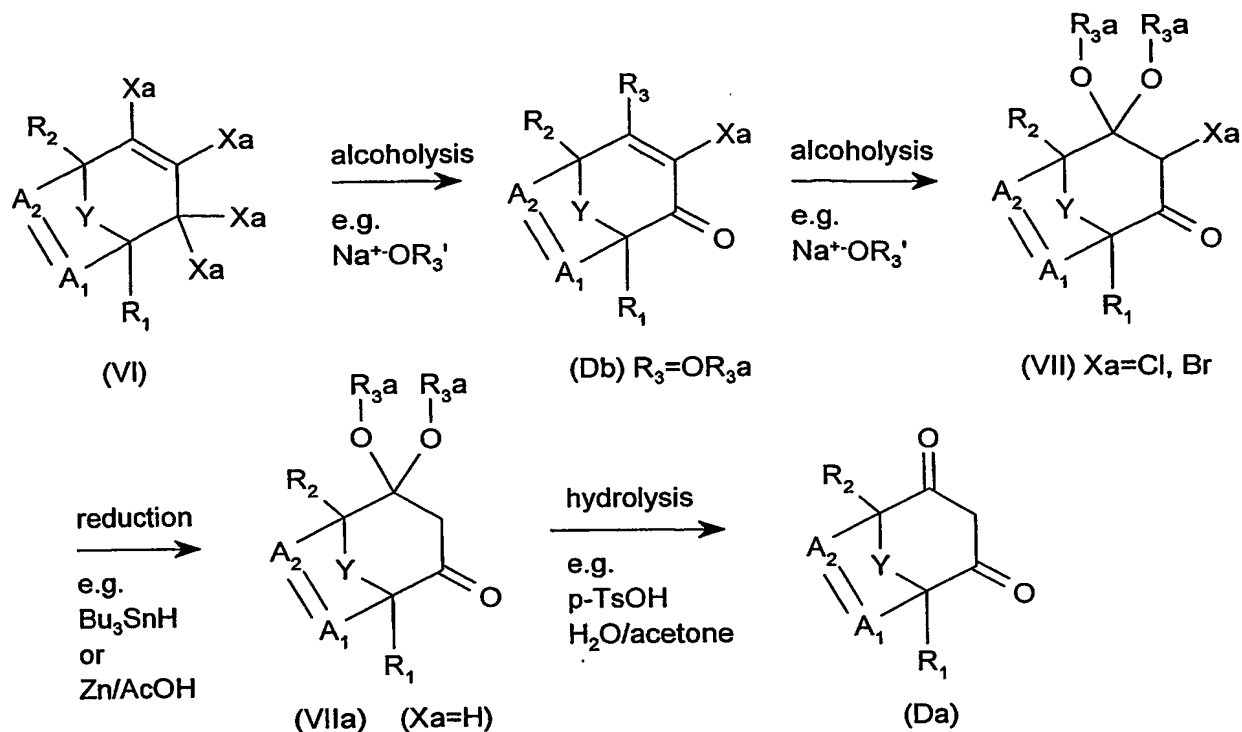


wherein A₁, A₂, R₁, R₂, R_{3a} and Y are as defined above, and subsequent hydrolysis, for example with dilute hydrochloric acid or a catalytic amount of p-toluenesulfonic acid in water, to form the compounds of formulae Da and Db

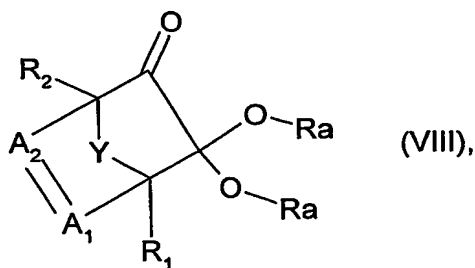


wherein A₁, A₂, R₁, R₂ and Y are as defined above and R₃ is hydroxy and Xa is hydrogen, as is shown generally in the following Scheme.

- 30 -

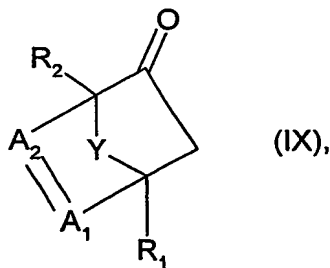


In a further process, compounds of formula Da can also be prepared either by conversion of a compound of formula VIII

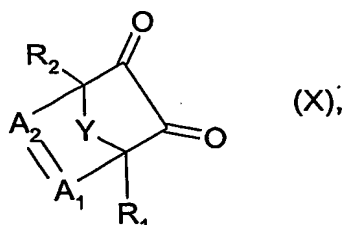


wherein R_1 , R_2 , A_1 , A_2 , Y are as defined above and Ra is $\text{C}_1\text{-C}_6$ alkyl or, when glycol is used, two R_{3a} together are $-\text{CH}_2\text{CH}_2-$, by hydrolysis, e.g. by treatment with an aqueous acid, Route c),

or by conversion of a compound of formula IX

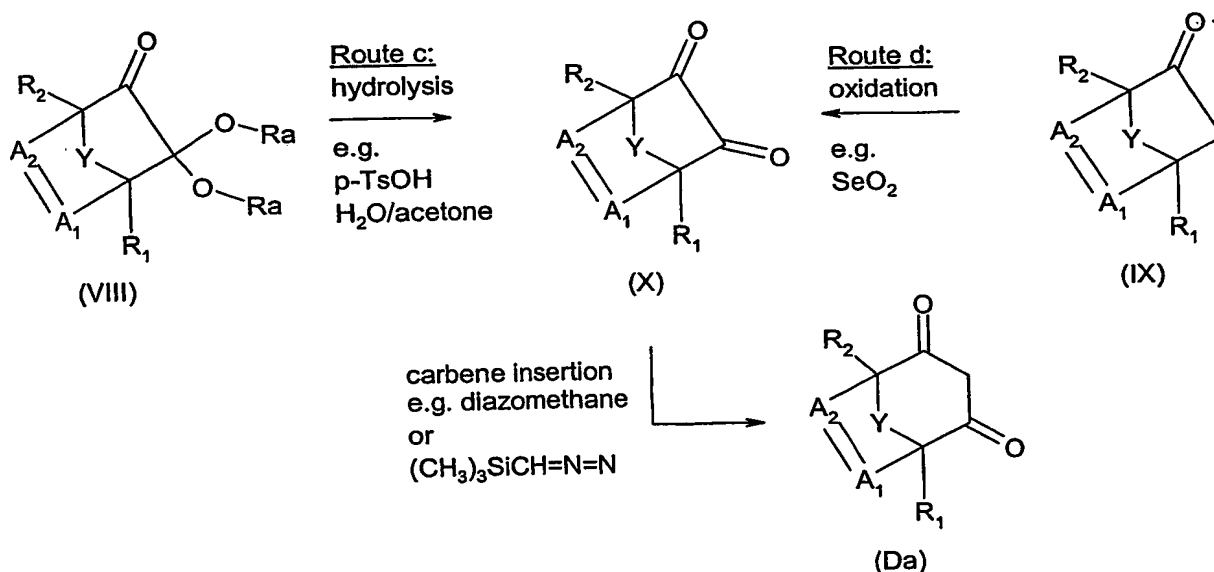


wherein R_1 , R_2 , A_1 , A_2 , Y are as defined above, by means of oxidation, e.g. with selenium dioxide, Route d), first into a diketo compound of formula X



wherein R_1 , R_2 , A_1 , A_2 , Y are as defined above, and subsequent conversion of that compound by carbene insertion, e.g. with diazomethane or with trimethylsilyl-diazomethane, into the 1,3-dione compound Da.

Those processes are also known *per se* to the person skilled in the art; the compounds can be prepared, depending upon the functionality of the groups R_1 , R_2 , A_1 , A_2 and Y , by general reaction routes shown in the following Scheme:



Using such routes it is readily possible to obtain, in particular, those compounds of formula VIII wherein Y is a C_2 alkylene chain substituted by R_6 , wherein R_6 is for example alkoxy, benzyloxy, alkylcarbonyl, alkoxy carbonyl, alkylthio or alkylsulfonyl.

Methods of obtaining the starting compounds of formula VIII used in the above-mentioned process are known, for example, from Acc. Chem. Res. 2002, 856; J.O.C. 2002, 67, 6493; Organic Letters 2002, 2477; Synlett, 2002, 1520; Chem. Commun. 2001, 1624; Synlett,

2000, 421; Tetrahedron Letters, 1999, 8431; J.O.C. 1999, 64, 4102; J.A.C.S. 1998, 129, 13254; Tetrahedron Letters, 1998, 659; Synlett, 1997, 1351. Methods of obtaining the starting compounds of formula IX are described, for example, in Org. Lettr. 2002, 2063; Synthetic Commun. 2001, 707; J.A.C.S. 2001, 123, 1569; Synlett, 1999, 225; Synlett, 1997, 786; Tetrahedron Letters, 1996, 7295; Synthesis, 1995, 845. Compounds of formula X are known, for example, from Synthesis, 2000, 850.

The transformations according to Route d) are likewise known, for example from Tetr. 1986, 42, 3491. Oxidation is preferably carried out with selenium dioxide in a solvent, such as acetic acid, at temperatures of from about 20°C to about 120°C and the carbene insertion with diazomethane is preferably effected at from about -40°C to about 50°C in a solvent, such as dichloromethane or diethyl ether. The carbene insertion can also be carried out with trimethylsilyldiazomethane, it having proved advantageous to work in the presence of a Lewis acid catalyst, such as boron trifluoride etherate, for example at temperatures of from about -15°C to about +25°C.

In principle, however, the compounds of formulae Da, Db, VII, VIIa, VIII, IX and X used as starting materials and as intermediates can be prepared, in dependence upon the substituent pattern A₁, A₂, R₁, R₂ and Y and also in dependence upon the availability of the starting materials, according to any desired methods and reaction routes, there being no limitation in respect of the process variants indicated above.

The compounds of formula Da wherein R₁, R₂, A₁, A₂ and Y are as defined above, and also compounds of formula Db wherein R₁, R₂, A₁, A₂ and Y are as defined above and R₃ is chlorine, bromine, hydroxy or C₁-C₆alkoxy and Xa is hydrogen, chlorine or bromine, with the exception of the compounds 3-chloro-8-oxa-bicyclo[3.2.1]oct-6-ene-2,4-dione; 3-chloro-bicyclo[3.2.1]oct-6-ene-2,4-dione; 3-chloro-4-hydroxy-bicyclo[3.2.1]octa-3,6-dien-2-one; 3,4-dibromo-8-oxa-bicyclo[3.2.1]octa-3,6-dien-2-one; 3,4-dibromo-1,5-dimethyl-8-oxa-bicyclo[3.2.1]octa-3,6-dien-2-one; 3,4-dibromo-bicyclo[3.2.1]octa-3,6-dien-2-one; 3,4-dichloro-8-oxa-bicyclo[3.2.1]octa-3,6-dien-2-one; 3,4-dichloro-bicyclo[3.2.1]octa-3,6-dien-2-one and 7,8-dibromo-5,9-dihydro-5,9-methano-benzocyclohepten-6-one, and also the compounds of formula VII are novel and constitute valuable intermediates for the preparation of compounds of formula I. The present invention accordingly relates likewise thereto.

The compounds of formulae Q_{1a}, Q_{2a} and Q_{3a} used as starting materials and their corresponding acids Q_{1b}, Q_{2b} and Q_{3b} are known from the publications WO 00/15615 and WO 01/94339 or can be prepared in accordance with the methods described therein.

The compounds of formula V used as starting material are likewise known, for example from Synthesis 1987, 260 and from J. Amer. Chem. Soc. 1968, 90 2376.

A large number of known standard methods are available for the preparation of all further compounds of formula I functionalised in accordance with the definition of A₁, A₂, R₁, R₂, Y and Q, for example alkylation, halogenation, acylation, amidation, oximation, oxidation and reduction, the choice of a suitable preparation process being governed by the properties (reactivities) of the substituents in question in the respective intermediates of formulae I, Da, Db, VI, VII and VIIa, and especially the starting materials of formulae IV and V and Q_{1b}, Q_{2b} and Q_{3b}.

The reactions to form compounds of formula I are advantageously carried out in aprotic, inert organic solvents. Such solvents are hydrocarbons, such as benzene, toluene, xylene or cyclohexane, chlorinated hydrocarbons, such as dichloromethane, trichloromethane, tetrachloromethane or chlorobenzene, ethers, such as diethyl ether, ethylene glycol dimethyl ether, diethylene glycol dimethyl ether, tetrahydrofuran or dioxane, nitriles, such as acetonitrile or propionitrile, amides, such as N,N-dimethylformamide, diethylformamide or N-methylpyrrolidinone. The reaction temperatures are preferably from -20°C to +120°C. The reactions generally proceed slightly exothermically and can generally be carried out at room temperature. In order to shorten the reaction time or to initiate the reaction, brief heating, up to the boiling point of the reaction mixture, can be carried out. The reaction times can likewise be shortened by the addition of a few drops of base as reaction catalyst. Suitable bases are especially tertiary amines, such as trimethylamine, triethylamine, quinuclidine, 1,4-diazabicyclo[2.2.2]octane, 1,5-diazabicyclo[4.3.0]non-5-ene or 1,5-diazabicyclo[5.4.0]undec-7-ene. It is also possible, however, to use as bases inorganic bases, such as hydrides, e.g. sodium or calcium hydride, hydroxides, e.g. sodium or potassium hydroxide, carbonates, e.g. sodium or potassium carbonate, or hydrogen carbonates, e.g. potassium or sodium hydrogen carbonate. The bases can be used as such or alternatively with catalytic amounts of a phase transfer catalyst, e.g. crown ethers, especially 18-crown-6, or tetraalkylammonium salts.

The end products of formula I can be isolated in conventional manner by concentration or

evaporation of the solvent and purified by recrystallisation or trituration of the solid residue in solvents in which they are not readily soluble, such as ethers, aromatic hydrocarbons or chlorinated hydrocarbons, by distillation or by means of column chromatography or by means of the HPLC technique using a suitable eluant.

The sequence in which the reactions should be carried out in order as far as possible to avoid secondary reactions will be familiar to the person skilled in the art. Unless the synthesis is specifically aimed at the isolation of pure isomers, the product may be obtained in the form of a mixture of two or more isomers, for example chiral centres in the case of alkyl groups or cis/trans isomerism in the case of alkenyl groups or <E> or <Z> forms. All such isomers can be separated by methods known *per se*, for example chromatography, crystallisation, or produced in the desired form by means of a specific reaction procedure.

For the use according to the invention of the compounds of formula I, or of compositions comprising them, there come into consideration all methods of application customary in agriculture, for example pre-emergence application, post-emergence application and seed dressing, and also various methods and techniques such as, for example, the controlled release of active ingredient. For that purpose a solution of the active ingredient is applied to mineral granule carriers or polymerised granules (urea/formaldehyde) and dried. If required, it is additionally possible to apply a coating (coated granules), which allows the active ingredient to be released in metered amounts over a specific period of time.

The invention therefore relates also to a herbicidal and plant-growth-inhibiting composition comprising a herbicidally effective amount of a compound of formula I according to claim 1 on an inert carrier.

The compounds of formula I can be used as herbicides in unmodified form, that is to say as obtained in the synthesis, but they are preferably formulated in customary manner together with the adjuvants conventionally employed in formulation technology e.g. into emulsifiable concentrates, directly sprayable or dilutable solutions, dilute emulsions, suspensions, mixtures of a suspension and an emulsion (suspoemulsions), wettable powders, soluble powders, dusts, granules or microcapsules. Such formulations are described, for example, on pages 9 to 13 of WO 97/34485. As with the nature of the compositions, the methods of application, such as spraying, atomising, dusting, wetting, scattering or pouring, are selected in accordance with the intended objectives and the prevailing circumstances.

The formulations, that is to say the compositions, preparations or mixtures comprising the compound (active ingredient) of formula I or at least one compound of formula I and, usually, one or more solid or liquid formulation adjuvants, are prepared in known manner, e.g. by homogeneously mixing and/or grinding the active ingredients with the formulation adjuvants, for example solvents or solid carriers. Surface-active compounds (surfactants) may also be used in addition in the preparation of the formulations. Examples of solvents and solid carriers are given, for example, on page 6 of WO 97/34485.

Depending upon the nature of the compound of formula I to be formulated, suitable surface-active compounds are non-ionic, cationic and/or anionic surfactants and surfactant mixtures having good emulsifying, dispersing and wetting properties.

Examples of suitable anionic, non-ionic and cationic surfactants are listed, for example, on pages 7 and 8 of WO 97/34485.

In addition, the surfactants conventionally employed in formulation technology, which are described, *inter alia*, in "McCutcheon's Detergents and Emulsifiers Annual" MC Publishing Corp., Ridgewood New Jersey, 1981, Stache, H., "Tensid-Taschenbuch", Carl Hanser Verlag, Munich/Vienna 1981, and M. and J. Ash, "Encyclopedia of Surfactants", Vol. I-III, Chemical Publishing Co., New York, 1980-81, are also suitable for the preparation of the herbicidal compositions according to the invention.

The compositions according to the invention can additionally include an additive comprising an oil of vegetable or animal origin, a mineral oil, alkyl esters thereof or mixtures of such oils and oil derivatives.

The amount of oil additive in the composition according to the invention is generally from 0.01 to 2 %, based on the spray mixture. For example, the oil additive can be added to the spray tank in the desired concentration after the spray mixture has been prepared.

Preferred oil additives comprise mineral oils or an oil of vegetable origin, for example rapeseed oil, olive oil or sunflower oil, emulsified vegetable oil, such as AMIGO® obtainable from Rhône-Poulenc Canada Inc., alkyl esters of oils of vegetable origin, for example the methyl derivatives, or an oil of animal origin, such as fish oil or beef tallow. A preferred additive contains as active components essentially 80 % by weight alkyl esters of fish oils

and 15 % by weight methylated rapeseed oil, and also 5 % by weight of customary emulsifiers and pH modifiers.

Especially preferred oil additives comprise alkyl esters of higher fatty acids (C_8 - C_{22}), especially the methyl derivatives of C_{12} - C_{18} fatty acids, for example the methyl esters of lauric acid, palmitic acid and oleic acid. Those esters are known as methyl laurate (CAS-111-82-0), methyl palmitate (CAS-112-39-0) and methyl oleate (CAS-112-62-9). A preferred fatty acid methyl ester derivative is Emery® 2230 and 2231 (Henkel subsidiary Cognis GMBH, DE).

The application and action of the oil additives can be improved by combining them with surface-active substances, such as non-ionic, anionic or cationic surfactants. Examples of suitable anionic, non-ionic and cationic surfactants are listed on pages 7 and 8 of WO 97/34485.

Preferred surface-active substances are anionic surfactants of the dodecylbenzylsulfonate type, especially the calcium salts thereof, and also non-ionic surfactants of the fatty alcohol ethoxylate type. Special preference is given to ethoxylated C_{12} - C_{22} fatty alcohols having a degree of ethoxylation of from 5 to 40. Examples of commercially available, preferred surfactants are the Genapol types (Clariant AG, Muttenz, Switzerland). Also preferred for use as surface-active substances are silicone surfactants, especially polyalkyl-oxide-modified heptamethyltrisiloxanes, such as are commercially available as e.g. Silwet L-77®, and also perfluorinated surfactants. The concentration of surface-active substances in relation to the total additive is generally from 1 to 30 % by weight.

Examples of oil additives that consist of mixtures of oils or mineral oils or derivatives thereof with surfactants are Edenor ME SU®, Turbocharge® (Zeneca Agro, Stoney Creek, Ontario, CA) and Actipron® (BP Oil UK Limited, GB).

The addition of an organic solvent to the oil additive/surfactant mixture can also bring about a further enhancement of action. Suitable solvents are, for example, Solvesso® (ESSO) and Aromatic Solvent® (Exxon Corporation) types.

The concentration of such solvents can be from 10 to 80 % by weight of the total weight.

Such oil additives, which are also described, for example, in US-A-4 834 908, are suitable for the composition according to the invention. A commercially available oil additive is known by the name MERGE®, is obtainable from the BASF Corporation and is essentially described,

for example, in US-A-4 834 908 in col. 5, as Example COC-1. A further oil additive that is preferred according to the invention is SCORE® (Novartis Crop Protection Canada.)

In addition to the oil additives listed above, in order to enhance the action of the compositions according to the invention it is also possible for formulations of alkyl pyrrolidones, such as are commercially available e.g. as Agrimax®, to be added to the spray mixture. Formulations of synthetic latices, such as, for example, polyacrylamide, polyvinyl compounds or poly-1-p-menthene, such as are commercially available as e.g. Bond®, Courier® or Emerald®, can also be used to enhance action. Solutions that contain propionic acid, for example Eurogkem Pen-e-trate®, can also be added as action-enhancing agent to the spray mixture.

The herbicidal formulations generally contain from 0.1 to 99 % by weight, especially from 0.1 to 95 % by weight, of herbicide, from 1 to 99.9 % by weight, especially from 5 to 99.8 % by weight, of a solid or liquid formulation adjuvant, and from 0 to 25 % by weight, especially from 0.1 to 25 % by weight, of a surfactant. Whereas commercial products will preferably be formulated as concentrates, the end user will normally employ dilute formulations. The compositions may also comprise further ingredients, such as stabilisers, for example vegetable oils or epoxidised vegetable oils (epoxidised coconut oil, rapeseed oil or soybean oil), anti-foams, for example silicone oil, preservatives, viscosity regulators, binders, tackifiers, and also fertilisers or other active ingredients.

The compounds of formula I are generally applied to the plant or to the locus thereof at rates of application of from 0.001 to 4 kg/ha, especially from 0.005 to 2 kg/ha. The concentration required to achieve the desired effect can be determined by experiment. It is dependent upon the nature of the action, the stage of development of the cultivated plant and of the weed and on the application (place, time, method) and may vary within wide limits as a function of those parameters.

The compounds of formula I are distinguished by herbicidal and growth-inhibiting properties, allowing them to be used in crops of useful plants, especially cereals, cotton, soybeans, sugar beet, sugar cane, plantation crops, rape, maize and rice, and also for non-selective weed control. The term "crops" is to be understood as including also crops that have been rendered tolerant to herbicides or classes of herbicides (such as, for example, HPPD inhibitors, ALS inhibitors, EPSPS (5-enol-pyrovyl-shikimate-3-phosphate-synthase) inhibitors, GS (glutamine synthetase) inhibitors) as a result of conventional methods of

breeding or genetic engineering. An example of a crop that has been rendered tolerant to imidazolinones, e.g. imazamox, by conventional methods of breeding (mutagenesis) is Clearfield® summer rape (Canola). Examples of crops that have been rendered tolerant to herbicides or classes of herbicides by genetic engineering methods include glyphosate- and glufosinate-resistant maize varieties commercially available under the trade names RoundupReady® and LibertyLink®.

Crops are also to be understood as being those which have been rendered resistant to harmful insects by genetic engineering methods, for example Bt maize (resistant to European corn borer), Bt cotton (resistant to cotton boll weevil) and also Bt potatoes (resistant to the Colorado beetle). Examples of Bt maize are the Bt 176 maize hybrids of NK® (Syngenta Seeds). The Bt toxin is a protein that is formed naturally by *Bacillus thuringiensis* soil bacteria. Examples of toxins, or transgenic plants able to synthesise such toxins, are described in EP-A-0 451 878, EP-A-0 374 753, WO 93/07278, WO 95/34656 and EP-A-0 427 529.

Plant crops or seed material thereof can be both herbicide-tolerant and at the same time resistant to insect feeding ("stacked" transgenic events).

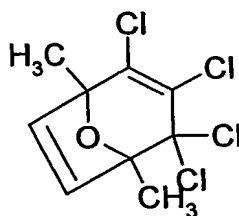
The weeds to be controlled may be both monocotyledonous and dicotyledonous weeds, such as, for example, *Stellaria*, *Nasturtium*, *Agrostis*, *Digitaria*, *Avena*, *Setaria*, *Sinapis*, *Lolium*, *Solanum*, *Echinochloa*, *Scirpus*, *Monochoria*, *Sagittaria*, *Bromus*, *Alopecurus*, *Sorghum halepense*, *Rottboellia*, *Cyperus*, *Abutilon*, *Sida*, *Xanthium*, *Amaranthus*, *Chenopodium*, *Ipomoea*, *Chrysanthemum*, *Galium*, *Viola* and *Veronica*.

The compositions according to the invention may additionally comprise growth regulators, for example trinexapac (744), chlormequat chloride (129), clofencet (148), cyclanilide (170), ethephon (281), flurprimidol (355), gibberellic acid (379), inabenfide (421), maleic hydrazide (449), mefluidide (463), mepiquat chloride (465), paclobutrazol (548), prohexadione-calcium (595), uniconazole (746) or thidiazuron (703). It is also possible for a composition according to the invention to comprise fungicides, for example azoxystrobin (43), epoxiconazole (48), benomyl (60), bromuconazole (89), bitertanol (77), carbendazim (107), cyproconazole (189), cyprodinil (190), diclomezine (220), difenoconazole (228), diniconazole (247), epoxiconazole (48), ethirimol (284), etridiazole (294), fenarimol (300), fenbuconazole (302), fenpiclonil (311), fenpropidin (313), fenpropimorph (314), ferimzone (321), fludioxonil (334), fluquinconazole (349), flutolanil (360), flutriafol (361), imazalil (410), ipconazole (426),

iprodione (428), isoprothiolane (432), kasugamycin (438), kresoxim-methyl (439), spiroxamine (441), mepronil (466), myclobutanil (505), nuarimol (528), pefurazoate (554), pencycuron (556), phthalide (576), probenazole (590), prochloraz (591), propiconazole (607), pyrazophos (619), pyroquilon (633), quinoxifen (638), quintozone (639), tebuconazole (678), tetraconazole (695), thiabendazole (701), thifluzamide (705), triadimefon (720), triadimenol (721), tricyclazole (734), tridemorph (736), triflumizole (738), triforine (742), triticonazole (745) or vinclozolin (751). The number in brackets after each active ingredient refers to the entry number of that active ingredient in the Pesticide Manual, eleventh ed., British Crop Protection Council, 1997.

The following Examples further illustrate the invention but do not limit the invention.

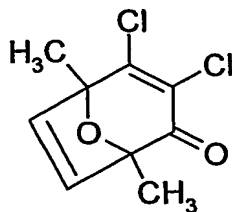
Preparation Example 1: Preparation of 2,3,4,4-tetrachloro-1,5-dimethyl-8-oxa-bicyclo[3.2.1]octa-2,6-diene:



6.49 g (67.48 mmol) of 2,5-dimethylfuran and 10 g (56.23 mmol) of tetrachlorocyclopropene are heated at boiling temperature in 70 ml of toluene for 16 hours. The toluene and excess 2,5-dimethylfuran are then removed under reduced pressure. The product, 14.77 g (95.9% of theory) of 2,3,4,4-tetrachloro-1,5-dimethyl-8-oxa-bicyclo[3.2.1]octa-2,6-diene, which remains behind in the form of an oil, can be transferred to the next reaction step without further purification (^1H NMR).

^1H NMR (300 MHz; CDCl_3) δ 6.50 (d, 1H); 6.15 (d, 1H); 1.82 (s, 3H); 1.63 (s, 3H).

Preparation Example P2: Preparation of 3,4-dichloro-1,5-dimethyl-8-oxa-bicyclo[3.2.1]octa-3,6-dien-2-one:

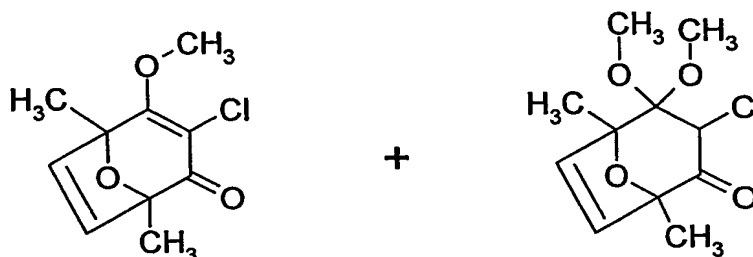


14 g (51.1 mmol) of unpurified 2,3,4,4-tetrachloro-1,5-dimethyl-8-oxa-bicyclo[3.2.1]octa-2,6-diene and 17.36 g (102.2 mmol) of silver nitrate are dissolved in 500 ml of acetone/water 1:1

mixture and heated for 15 hours at a temperature of 65-70°C until the reaction of the reactants is complete (thin-layer chromatography (TLC) monitoring (mobile phase hexane / ethyl acetate 4:1)). After the reaction mixture has cooled to ambient temperature, solid sodium hydrogen carbonate is then stirred into the mixture in portions in order to neutralise the nitric acid. The precipitated silver bromide is filtered off and most of the acetone is distilled off under reduced pressure. The aqueous phase that remains behind is extracted three times with ethyl acetate. The organic extract is washed with water, dried over sodium sulfate and concentrated by evaporation. The oily residue is purified by means of silica gel chromatography (eluant gradient: 3-50% ethyl acetate in hexane). 6.1 g (54%) of pure 3,4-dichloro-1,5-dimethyl-8-oxa-bicyclo[3.2.1]octa-3,6-dien-2-one are obtained in the form of a pale yellow solid.

^1H NMR (300 MHz; CDCl_3) δ 6.65 (d, 1H); 6.23 (d, 1H); 1.72 (s, 3H); 1.61 (s, 3H).

Preparation Example P3: Preparation of 3-chloro-1,5-dimethyl-4-methoxy-8-oxa-bicyclo[3.2.1]octa-3,6-dien-2-one and 3-chloro-4,4-dimethoxy-1,5-dimethyl-8-oxa-bicyclo[3.2.1]oct-6-en-2-one:



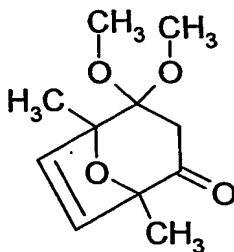
6.0 g (27.39 mmol) of 3,4-dichloro-1,5-dimethyl-8-oxa-bicyclo[3.2.1]octa-3,6-dien-2-one is introduced into 39 ml of anhydrous methanol. At a temperature of 0°C, the reaction mixture is further diluted dropwise with a solution of 15.2 ml of 5.4M sodium methanolate (82.17 mmol) and treated with 10 ml of absolute methanol. The reaction mixture is then heated to ambient temperature with 35 minutes' stirring. Using thin-layer chromatography (hexane/ethyl acetate 8:2) it can be established that reaction of the starting material is complete. The reaction solution is then concentrated under reduced pressure. The residue is then extracted by means of carbon tetrachloride against water. The aqueous phase is extracted a further three times using fresh carbon tetrachloride. The combined organic extracts are dried over sodium sulfate and concentrated by evaporation under reduced pressure; with ice-cooling, the oily product that remains behind crystallises out in the form of a ~1:1 mixture. The mixture is separated by means of column chromatography on silica gel (eluant: gradient from 1-5% ethyl acetate / hexane). 3.1 g (52.9%) of pure 3-chloro-1,5-dimethyl-4-methoxy-8-oxa-bicyclo[3.2.1]octa-3,6-dien-2-one are isolated.

^1H NMR (300 MHz; CDCl_3) δ 6.48 (d, 1H); 6.24 (d, 1H); 4.24 (s, 3H); 1.60 (s, 3H); 1.56 (s, 3H).

A second fraction yields 3.17 g (46.9%) of pure 3-chloro-4,4-dimethoxy-1,5-dimethyl-8-oxa-bicyclo[3.2.1]oct-6-en-2-one.

^1H NMR (300 MHz; CDCl_3) δ 6.25 (d, 1H); 6.05 (d, 1H); 5.15 (s, 1H); 3.48 (s, 3H); 3.46 (s, 3H); 1.53 (s, 3H); 1.51 (s, 3H).

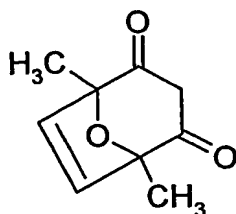
Preparation Example P4: Preparation of 4,4-dimethoxy-1,5-dimethyl-8-oxa-bicyclo[3.2.1]oct-6-en-2-one:



2.2 g (8.92 mmol) of 3-chloro-4,4-dimethoxy-1,5-dimethyl-8-oxa-bicyclo[3.2.1]oct-6-en-2-one in 240 ml of toluene are degassed, with heating at reflux temperature, and a catalytic amount of 66 mg of azaisobutyronitrile (AIBN) and a solution of 5.9 ml (22.3 mmol) of tributyltin hydride are added in succession. The reaction mixture is maintained at reflux temperature for a further 20 minutes to complete the reaction (TLC monitoring: hexane/ethyl acetate 4:1). The reaction mixture is then concentrated by evaporation under reduced pressure. The residue is then taken up in acetonitrile and the tin-containing residues are extracted by means of hexane. The acetonitrile phase is concentrated by evaporation *in vacuo*, 1.56 g (82.4% of theory) of 4,4-dimethoxy-1,5-dimethyl-8-oxa-bicyclo[3.2.1]oct-6-en-2-one remaining behind in the form of a yellow oil, which can be used for the next reaction step without further purification.

^1H NMR (300 MHz; CDCl_3) δ 6.22 (d, 1H); 5.90 (d, 1H); 3.41 (s, 3H); 3.25 (s, 3H); 2.92 and 2.84 (AB syst., 2H, $J = 16.5$ Hz); 1.55 (s, 3H); 1.45 (s, 3H).

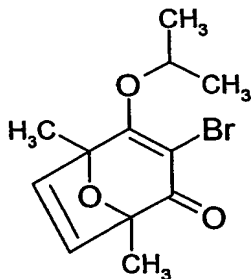
Preparation Example P5: Preparation of 1,5-dimethyl-8-oxa-bicyclo[3.2.1]oct-6-ene-2,4-dione:



1.61 g (7.59 mmol) of 4,4-dimethoxy-1,5-dimethyl-8-oxa-bicyclo[3.2.1]oct-6-en-2-one and 0.432 g (2.28 mmol) of p-toluenesulfonic acid are dissolved in a 2:1 mixture of acetone and water and heated for 50 minutes at a temperature of 70°C (TLC monitoring: hexane/ethyl acetate 9:1). The acetone is then removed under reduced pressure. The aqueous phase is then adjusted to pH 9 with saturated sodium hydrogen carbonate solution and extracted three times with ethyl acetate to remove neutral components. The aqueous phase is then adjusted to pH 5 with dilute hydrochloric acid and extracted three times with fresh ethyl acetate. The organic phase is dried over sodium sulfate and concentrated by evaporation under reduced pressure, there being obtained 1.04 g (82.5%) of technically pure 1,5-dimethyl-8-oxa-bicyclo[3.2.1]oct-6-ene-2,4-dione in the form of a yellowish product, which can be used without further purification in the next reaction step to form compounds of formula I.

^1H NMR (300 MHz; CDCl_3) δ 6.46 (d, 1H); 6.23 (d, 1H); 5.54 (hept., 1H); 1.58 (d, 6H); 1.40 (d, 3H); 1.25 (d, 3H).

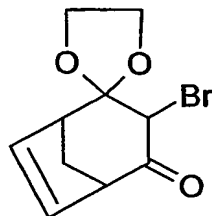
Preparation Example P6: Preparation of 3-bromo-1,5-dimethyl-4-isopropoxy-8-oxa-bicyclo[3.2.1]octa-3,6-dien-2-one



A solution of 2.74 g (8.9 mmol) of 3,4-dibromo-1,5-dimethyl-8-oxa-bicyclo[3.2.1]octa-3,6-dien-2-one (prepared according to *Organic Lett.* 4(12), 1997 (2002)) dissolved in 10 ml of tetrahydrofuran is added dropwise at ambient temperature to a solution of 5.4 ml (10.7 mmol) of 2M lithium isopropanolate diluted with 10 ml of tetrahydrofuran. The mixture is stirred for 3 hours at ambient temperature until the starting material has reacted completely (TLC monitoring: hexane/ethyl acetate/hexane 4:1). The reaction solution is then treated at a temperature of 0°C with a 10% sodium dihydrogen phosphate solution (20 ml) and water (30 ml) and extracted three times with ethyl acetate. Drying over sodium sulfate and concentration by evaporation are carried out. For further purification, the dark oil so obtained is purified by chromatography over silica gel with 5% ethyl acetate in hexane. 1.73 g (68% of theory) of pure 3-bromo-1,5-dimethyl-4-isopropoxy-8-oxa-bicyclo[3.2.1]octa-3,6-dien-2-one are isolated.

^1H NMR (300 MHz; CDCl_3) δ 6.46 (d, 1H); 6.23 (d, 1H); 5.54 (hept., 1H); 1.58 (d, 6H); 1.40 (d, 3H); 1.25 (d, 3H).

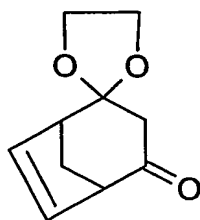
Preparation Example P7: Preparation of 3-bromo-4,4-(1',2'-ethylenedioxy)-bicyclo[3.2.1]oct-6-en-2-one:



A sodium glycolate solution is prepared by stirring 124 mg (5.4 mmol) of metallic sodium into 2.7 ml (42.42 mmol) of anhydrous ethylene glycol at ambient temperature and, when the sodium has completely dissolved, 1.5 ml of tetrahydrofuran are added. To the resulting monosodium glycolate solution there is then added dropwise a solution of 1 g (3.6 mmol) of 3,4-dibromo-bicyclo[3.2.1]octa-3,6-dien-2-one (prepared according to *Organic Lett.* 4(12), 1997 (2002)) dissolved in 5 ml of tetrahydrofuran. The reaction mixture is then stirred at ambient temperature for 90 minutes with TLC monitoring (mobile phase hexane/ethyl acetate 4:1). The reaction mixture is then treated with 8 ml of 10% sodium dihydrogen phosphate solution and extracted with ethyl acetate (3x). The organic phase is washed with water to remove ethylene glycol, then dried and concentrated by evaporation. 930 mg (~100%) of 3-bromo-4,4-ethylenedioxy-bicyclo[3.2.1]oct-6-en-2-one are obtained in the form of a white solid.

^1H NMR (300 MHz; CDCl_3) δ 6.38 (m, 1H); 6.25 (m, 1H); 5.46 (s, 1H); 4.25 (m, 2H); 4.04 (m, 2H); 3.38 (m, 1H); 2.98 (m, 1H); 2.40 (m, 1H); 2.25 (m, 1H).

Preparation Example P8: Preparation of 4,4-(1',2'-ethylenedioxy)-bicyclo[3.2.1]oct-6-en-2-one:

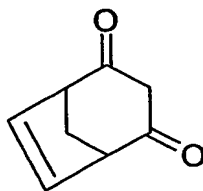


A degassed solution of 920 mg (3.55 mmol) of 3-bromo-4,4-(1',2'-ethylenedioxy)-bicyclo[3.2.1]oct-6-en-2-one in 90 ml of toluene is treated at boiling temperature in succession with a catalytic amount (30 mg) of AIBN and with 2.35 ml (8.88 mmol) of tributyltin hydride. To

complete the reaction, the reaction mixture is maintained at reflux for a further 20 minutes, with TLC monitoring (mobile phase hexane/ethyl acetate 1:1). The reaction mixture is then concentrated by evaporation under reduced pressure. The residue is taken up in a small amount of acetonitrile and extracted five times with a small amount of hexane in order to remove tin-containing secondary products. The acetonitrile phase is then again concentrated by evaporation. 800 mg of 4,4-(1',2'-ethylenedioxy)-bicyclo[3.2.1]oct-6-en-2-one are obtained in the form of a yellow oil, which can be transferred directly to the next reaction step without further purification.

^1H NMR (300 MHz; CDCl_3) δ 6.30 (m, 1H); 6.12 (m, 1H); 4.02-3.90 (m, 2 x 2H); 3.10 (m, 1H); 3.06 (d, 1H); 2.83 (m, 1H); 2.45 (d, 1H); 2.40-2.25 (m, 2 x 1H).

Preparation Example P9: Bicyclo[3.2.1]oct-6-ene-2,4-dione:



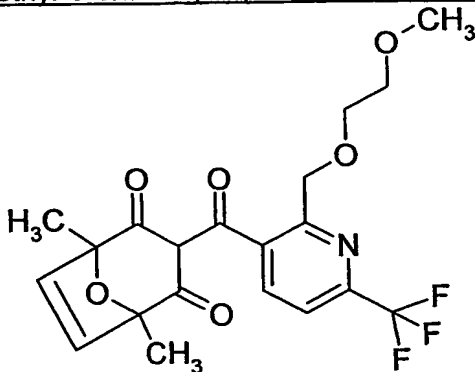
a) 640 mg (3.55 mmol) of 4,4-(1',2'-ethylenedioxy)-bicyclo[3.2.1]oct-6-en-2-one are heated for 16 hours at a temperature of 70°C in the presence of 200 mg of p-toluenesulfonic acid in a 2:1 mixture of acetone and water. After hydrolysis is complete (TLC monitoring: ethyl acetate / hexane 1:1), the acetone is distilled off under reduced pressure and the aqueous phase is adjusted to pH 9 with saturated sodium hydrogen carbonate solution. After extraction of the aqueous phase three times with ethyl acetate, it is acidified to pH 5 with dilute hydrochloric acid. Extraction is carried out three times with fresh ethyl acetate, followed by drying over sodium sulfate and concentration by evaporation *in vacuo*. 364 mg (75%) of pure bicyclo[3.2.1]oct-6-ene-2,4-dione are obtained in the form of a yellow oil for further reaction to form compounds of formula I.

^1H NMR (300 MHz; CDCl_3) δ 6.22 (m, 2H); 3.50 (d, 1H); 3.45 (m, 2H); 3.22 (d, 1H); 2.60-2.45 (m, 2 x 1H).

b) One-pot process: 100 mg (0.39 mmol) of 3-bromo-4,4-(1',2'-ethylenedioxy)-bicyclo[3.2.1]oct-6-en-2-one are taken up in concentrated acetic acid and treated at ambient temperature with 80 mg (1.16 mmol) of zinc powder. The progress of the reaction is monitored by means of thin-layer chromatography (mobile phase: hexane/ethyl acetate 1:1). When after 2 hours brominated starting material can no longer be detected, the reaction mixture is heated cont-

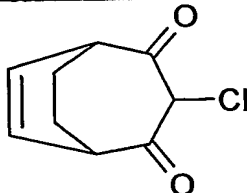
inuously at a temperature of 95°C. After a further 2 hours, according to thin-layer chromatography all the reference material 4,4-(1',2'-ethylenedioxy)-bicyclo[3.2.1]oct-6-en-2-one has reacted. The reaction mixture is filtered and concentrated *in vacuo*. The residue is treated with saturated sodium hydrogen carbonate solution and extracted three times with ethyl acetate. The alkaline aqueous phase is adjusted to pH 3-4 with dilute hydrochloric acid and extracted three times with fresh ethyl acetate. After drying of the organic phase over sodium sulfate and subsequent concentration by evaporation, 45 mg (85% of theory) of technically pure bicyclo[3.2.1]oct-6-ene-2,4-dione are obtained.

Preparation Example P10: Preparation of 3-[2-(2-methoxy-ethoxymethyl)-6-trifluoromethyl-pyridine-3-carbonyl]-1,5-dimethyl-8-oxa-bicyclo[3.2.1]oct-6-ene-2,4-dione:



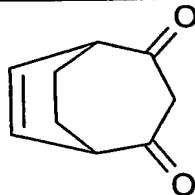
146 mg (0.879 mmol) of 1,5-dimethyl-8-oxa-bicyclo[3.2.1]oct-6-ene-2,4-dione and 245 mg (0.879 mmol) of 2-(2-methoxy-ethoxymethyl)-6-trifluoromethyl-nicotinic acid (preparation as described in WO 01/94339) are dissolved in 29 ml of acetonitrile and treated at ambient temperature with 199 mg (0.966 mmol) of dicyclohexylcarbodiimide. The reaction mixture is stirred for 2 hours and then 0.184 ml (1.318 mmol) of triethylamine and 0.08 ml (0.879 mmol) of acetone cyanohydrin are added. Stirring is carried out for a further 16 hours at ambient temperature, followed by concentration under reduced pressure. The residue that remains behind is chromatographed over silica gel (eluant: toluene / ethanol / dioxane / triethylamine / water 20:8:4:4:1). The product-containing fraction is concentrated. The oily residue is again dissolved in fresh ethyl acetate and washed with 10 ml of dilute hydrochloric acid (pH 1), and then with water (2x) and sodium chloride solution (2x). After the solution has been dried over sodium sulfate and concentrated by evaporation under reduced pressure, 128 mg (34%) of 3-[2-(2-methoxy-ethoxymethyl)-6-trifluoromethyl-pyridine-3-carbonyl]-1,5-dimethyl-8-oxa-bicyclo[3.2.1]oct-6-ene-2,4-dione are obtained in the form of a yellow oil.

¹H NMR (300 MHz; CDCl₃) δ 16.1 (br. s, 1H); 7.68 (m, 2 x 1H); 6.29 (d, 1H); 6.22 (d, 1H); 4.72 (m, 2H); 3.48 (m, 2H); 3.37 (m, 2H); 3.32 (s, 3H); 1.68 (s, 3H); 1.48 (s, 3H).

Preparation Example P11: 3-Chloro-bicyclo[3.2.2]non-6-ene-2,4-dione:

0.7 g (2.7 mmol) of 2,3,4,4-tetrachloro-bicyclo[3.2.2]nona-2,6-diene (known from US-A-3 538 117) is heated in a mixture of 1 ml of trifluoroacetic acid, 4 ml of acetic acid and 1 ml of water for 18 hours at a temperature of 70°C. The cooled reaction solution is then taken up in diethyl ether and extracted first with water and then with saturated sodium chloride solution. After chromatographic purification (ethyl acetate/hexane 1:4), 0.33 g of 3-chloro-bicyclo[3.2.2]non-6-ene-2,4-dione is obtained as a tautomeric mixture of the forms Da and Db.

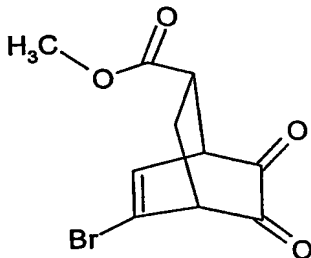
¹H-NMR (300 MHz; CDCl₃) δ 8.58 (b, 1H); 6.38 (m, 2H); 3.78 (m, 2H); 2.05 to 1.80 (m, 4H); tautomeric form Db.

Preparation Example P12: Bicyclo[3.2.2]non-6-ene-2,4-dione:

0.19 g (1 mmol) of 3-chloro-bicyclo[3.2.2]non-6-ene-2,4-dione is treated in the presence of 4 ml of acetic acid with 0.27 g (4 mmol) of zinc and the mixture is heated for 3 hours at a temperature of 95°C. The cooled reaction mixture is then extracted with ethyl acetate against water and then washed again with saturated sodium chloride solution. 0.14 g of amorphous bicyclo[3.2.2]non-6-ene-2,4-dione is obtained as tautomeric form Da.

¹H-NMR (300 MHz; CDCl₃) δ 6.22 (m, 2H); 3.58 to 3.51 (m, 2H); 2.12 (m, 2H); 1.92 (m, 2H).

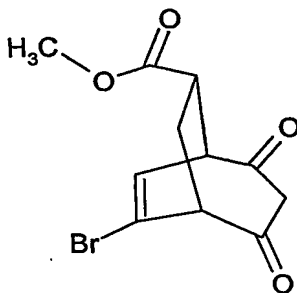
Preparation Example P13: 5-Bromo-7,8-dioxo-bicyclo[2.2.2]oct-5-ene-2-carboxylic acid methyl ester:



3 g (9.4 mmol) of 5-bromo-8,8-dimethoxy-7-oxo-bicyclo[2.2.2]oct-5-ene-2-carboxylic acid methyl ester (J.O.C. (202), 67, 6493) are stirred in a mixture of 15 ml of trifluoroacetic acid and 1 ml of water for 12 hours at room temperature. Extraction is then carried out with dichloromethane against water. The organic phase is dried over sodium sulfate and yields, after removal of the solvent, the 5-bromo-7,8-dioxo-bicyclo[2.2.2]oct-5-ene-2-carboxylic acid methyl ester in the form of an orange-coloured oil and as a pure isomer.

$^1\text{H-NMR}$ (300 MHz; CDCl_3) δ 6.62 (d, 1H); 3.97 (d, 1H); 3.80 (s, 3H); 3.70 (m, 1H); 3.20 (d, 1H); 2.63 (m, 1H); 2.40 (m, 1H).

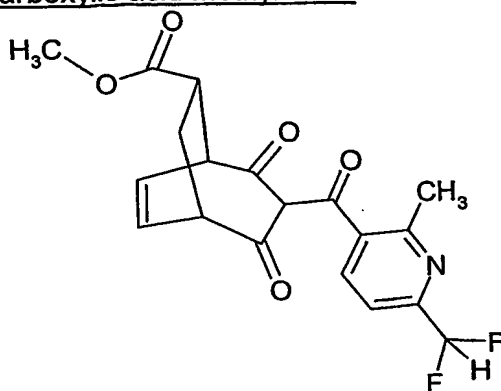
Preparation Example P14: 8-Bromo-2,4-dioxo-bicyclo[3.2.2]non-8-ene-6-carboxylic acid methyl ester



4.2 ml of trimethylsilyl-diazomethane are added dropwise at a temperature of -10°C to a solution of 1.91 g (7 mmol) of 5-bromo-7,8-dioxo-bicyclo[2.2.2]oct-5-ene-2-carboxylic acid methyl ester in 20 ml of dichloromethane and 0.089 ml (0.7 mmol) of boron trifluoride etherate. The cooling is removed and the reaction mixture is stirred for 4 hours at a temperature of 20°C . The reaction solution is then extracted with water, the organic phase is dried over sodium sulfate and concentrated by evaporation using a rotary evaporator, and the residue is purified by silica gel chromatography. An isomer of 8-bromo-2,4-dioxo-bicyclo[3.2.2]non-8-ene-6-carboxylic acid methyl ester is obtained.

$^1\text{H-NMR}$ (300 MHz; CDCl_3) δ 6.42 (d, 1H); 3.86 (d, 1H); 3.75 (d, 1H); 3.68 (s, 3H); 3.65 (m, 1H); 3.43 (d, 1H); 3.10 (m, 1H); 2.52 (m, 1H); 2.34 (m, 1H); tautomeric form Da.

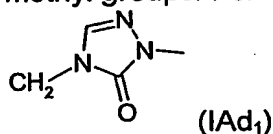
Preparation Example P15: 3-(2-Methyl-6-difluoromethyl-pyridine-3-carbonyl)-2,4-dioxo-bicyclo[3.2.2]non-8-ene-6-carboxylic acid methyl ester



Catalytic amounts (10 mg) of azaisobutyronitrile are added to a solution of 0.10 g (0.24 mmol) of 8-bromo-3-(2-methyl-6-difluoromethyl-pyridine-3-carbonyl)-2,4-dioxo-bicyclo[3.2.2]non-8-ene-6-carboxylic acid methyl ester (Example 1.1155) and 0.149 ml (0.48 mmol) of tris(trimethylsilyl)silane in 3.5 ml of toluene and the reaction mixture is stirred at a temperature of 80°C. 5 mg portions of fresh azaisobutyronitrile dissolved in a small amount of toluene are then added four times until, after 6 days, the reaction has come to a complete standstill (LC-MS monitoring). The solvent is then removed under reduced pressure and the residue is purified by silica gel chromatography (eluant: gradient mixture of ethyl acetate / tetrahydrofuran / hexane and 3% triethylamine). After removal of the solvents the triethylammonium salt of 3-(2-methyl-6-difluoromethyl-pyridine-3-carbonyl)-2,4-dioxo-bicyclo[3.2.2]non-8-ene-6-carboxylic acid methyl ester is obtained.

$^1\text{H-NMR}$ (300 MHz; CDCl_3) δ 7.30 (m, 2H); 6.51 (t, 1H); 6.35 (m, 1H); 6.18 (m, 1H); 3.68 (m, 1H); 3.52 (s, 3H); 3.35 (m, 1H); 3.24 (m, 1H); 3.00 (q, 6H); 2.40 (s, 3H); 2.38 (m, 1H); 2.14 (m, 1H); 1.18 (t, 9H).

The following Tables 1 to 3 list preferred compounds of formula I. The linkage site of the substituent Z_1 to the pyridine ring is the unsaturated valency; the free bonds represent methyl groups. For example, in the group



the $-\text{CH}_2$ group at the nitrogen atom adjacent to the keto group is the linkage site; the free bond at the nitrogen atom represents methyl. That group can also be depicted as follows:

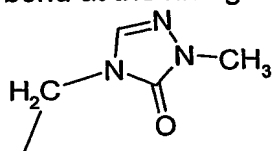
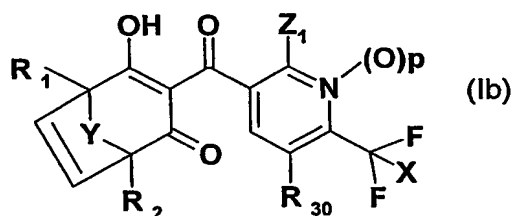
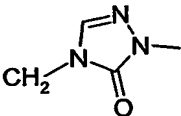
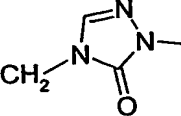
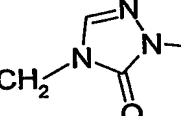
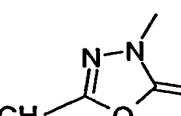
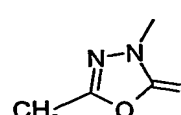
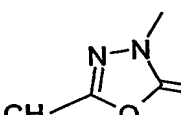
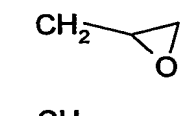
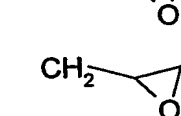
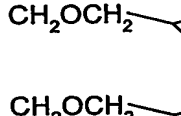
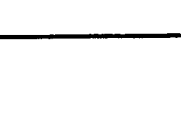




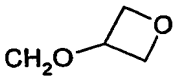
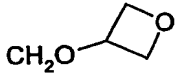
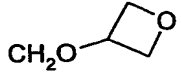
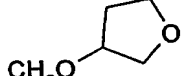
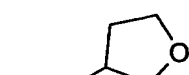

Table 1: Compounds of formula Ib:



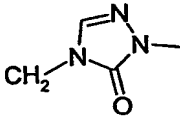
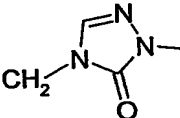
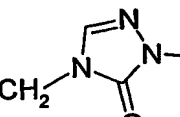
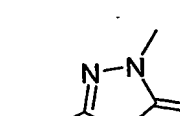
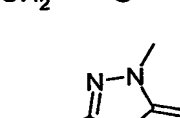
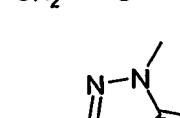
No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.0000	H	H	CH ₃	H	F	NSO ₂ CH ₃	0	
1.0001	H	H	CH ₃	H	Cl	NSO ₂ CH ₃	0	
1.0002	H	H	CH ₃	H	H	NSO ₂ CH ₃	0	
1.0003	H	H	CH ₃	CH ₃	F	NSO ₂ CH ₃	0	
1.0004	H	H	CH ₃	CH ₃	Cl	NSO ₂ CH ₃	0	
1.0005	H	H	CH ₃	CH ₃	H	NSO ₂ CH ₃	0	
1.0006	H	H	CH ₂ CH ₃	H	F	NSO ₂ CH ₃	0	
1.0007	H	H	CH ₂ CH ₃	H	Cl	NSO ₂ CH ₃	0	
1.0008	H	H	CH ₂ CH ₃	H	H	NSO ₂ CH ₃	0	
1.0009	H	H	CH ₂ CH ₂ CH ₃	H	F	NSO ₂ CH ₃	0	
1.0010	H	H	CH ₂ CH ₂ CH ₃	H	Cl	NSO ₂ CH ₃	0	
1.0011	H	H	CH ₂ CH ₂ CH ₃	H	H	NSO ₂ CH ₃	0	
1.0012	H	H	CH ₂ OCH ₃	H	F	NSO ₂ CH ₃	0	
1.0013	H	H	CH ₂ OCH ₃	H	Cl	NSO ₂ CH ₃	0	
1.0014	H	H	CH ₂ OCH ₃	H	H	NSO ₂ CH ₃	0	
1.0015	H	H	CH ₂ OCH ₂ CH ₃	H	F	NSO ₂ CH ₃	0	
1.0016	H	H	CH ₂ OCH ₂ CH ₃	H	Cl	NSO ₂ CH ₃	0	
1.0017	H	H	CH ₂ OCH ₂ CH ₃	H	H	NSO ₂ CH ₃	0	

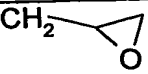
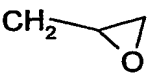
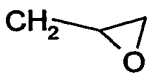
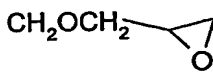
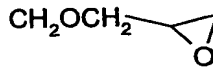
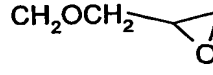
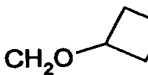
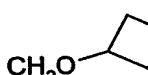
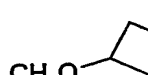
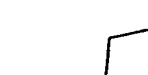
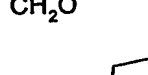
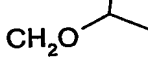
No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.0018	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	H	F	NSO ₂ CH ₃	0	
1.0019	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	H	Cl	NSO ₂ CH ₃	0	
1.0020	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	H	H	NSO ₂ CH ₃	0	
1.0021	H	H	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	F	NSO ₂ CH ₃	0	
1.0022	H	H	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	Cl	NSO ₂ CH ₃	0	
1.0023	H	H	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	H	NSO ₂ CH ₃	0	
1.0024	H	H	CH ₂ CH ₂ OCH ₃	H	F	NSO ₂ CH ₃	0	
1.0025	H	H	CH ₂ CH ₂ OCH ₃	H	Cl	NSO ₂ CH ₃	0	
1.0026	H	H	CH ₂ CH ₂ OCH ₃	H	H	NSO ₂ CH ₃	0	
1.0027	H	H	CH ₂ OCH ₂ C≡CH	H	F	NSO ₂ CH ₃	0	
1.0028	H	H	CH ₂ OCH ₂ C≡CH	H	Cl	NSO ₂ CH ₃	0	
1.0029	H	H	CH ₂ OCH ₂ C≡CH	H	H	NSO ₂ CH ₃	0	
1.0030	H	H	CH ₂ OCH ₂ C≡CCH ₃	H	F	NSO ₂ CH ₃	0	
1.0031	H	H	CH ₂ OCH ₂ C≡CCH ₃	H	Cl	NSO ₂ CH ₃	0	
1.0032	H	H	CH ₂ OCH ₂ C≡CCH ₃	H	H	NSO ₂ CH ₃	0	
1.0033	H	H	CH ₂ CH ₂ CH ₂ OCH ₃	H	F	NSO ₂ CH ₃	0	
1.0034	H	H	CH ₂ CH ₂ CH ₂ OCH ₃	H	Cl	NSO ₂ CH ₃	0	
1.0035	H	H	CH ₂ CH ₂ CH ₂ OCH ₃	H	H	NSO ₂ CH ₃	0	
1.0036	H	H	CH ₂ OCH ₂ OCH ₃	H	F	NSO ₂ CH ₃	0	
1.0037	H	H	CH ₂ OCH ₂ OCH ₃	H	Cl	NSO ₂ CH ₃	0	
1.0038	H	H	CH ₂ OCH ₂ OCH ₃	H	H	NSO ₂ CH ₃	0	
1.0039	H	H	CH ₂ N(CH ₃)SO ₂ CH ₃	H	F	NSO ₂ CH ₃	0	
1.0040	H	H	CH ₂ N(CH ₃)SO ₂ CH ₃	H	Cl	NSO ₂ CH ₃	0	
1.0041	H	H	CH ₂ N(CH ₃)SO ₂ CH ₃	H	H	NSO ₂ CH ₃	0	
1.0042	H	H	CF ₃	H	F	NSO ₂ CH ₃	0	
1.0043	H	H	CF ₃	H	Cl	NSO ₂ CH ₃	0	
1.0044	H	H	CF ₃	H	H	NSO ₂ CH ₃	0	
1.0045	H	H	CH ₂ OCH ₂ CF ₃	H	F	NSO ₂ CH ₃	0	
1.0046	H	H	CH ₂ OCH ₂ CF ₃	H	Cl	NSO ₂ CH ₃	0	
1.0047	H	H	CH ₂ OCH ₂ CF ₃	H	H	NSO ₂ CH ₃	0	
1.0048	H	H	CH ₂ OCH ₂ Ph	H	F	NSO ₂ CH ₃	0	
1.0049	H	H	CH ₂ OCH ₂ Ph	H	Cl	NSO ₂ CH ₃	0	
1.0050	H	H	CH ₂ OCH ₂ Ph	H	H	NSO ₂ CH ₃	0	

No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.0051	H	H	CH ₂ OCH ₂ CH=CH ₂	H	F	NSO ₂ CH ₃	0	
1.0052	H	H	CH ₂ OCH ₂ CH=CH ₂	H	Cl	NSO ₂ CH ₃	0	
1.0053	H	H	CH ₂ OCH ₂ CH=CH ₂	H	H	NSO ₂ CH ₃	0	
1.0054	H	H		H	F	NSO ₂ CH ₃	0	
1.0055	H	H		H	Cl	NSO ₂ CH ₃	0	
1.0056	H	H		H	H	NSO ₂ CH ₃	0	
1.0057	H	H		H	F	NSO ₂ CH ₃	0	
1.0058	H	H		H	Cl	NSO ₂ CH ₃	0	
1.0059	H	H		H	H	NSO ₂ CH ₃	0	
1.0060	H	H		H	F	NSO ₂ CH ₃	0	
1.0061	H	H		H	Cl	NSO ₂ CH ₃	0	
1.0062	H	H		H	H	NSO ₂ CH ₃	0	
1.0063	H	H		H	F	NSO ₂ CH ₃	0	
1.0064	H	H		H	Cl	NSO ₂ CH ₃	0	

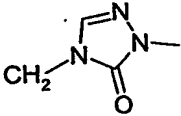
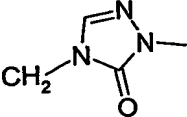
No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.0065	H	H	CH ₂ OCH ₂ 	H	H	NSO ₂ CH ₃	0	
1.0066	H	H	CH ₂ O 	H	F	NSO ₂ CH ₃	0	
1.0067	H	H	CH ₂ O 	H	Cl	NSO ₂ CH ₃	0	
1.0068	H	H	CH ₂ O 	H	H	NSO ₂ CH ₃	0	
1.0069	H	H	CH ₂ O 	H	F	NSO ₂ CH ₃	0	
1.0070	H	H	CH ₂ O 	H	Cl	NSO ₂ CH ₃	0	
1.0071	H	H	CH ₂ O 	H	H	NSO ₂ CH ₃	0	
1.0072	H	H	CH ₃	H	F	NSO ₂ CH ₃	1	
1.0073	H	H	CH ₂ OCH ₃	H	F	NSO ₂ CH ₃	1	
1.0074	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	H	F	NSO ₂ CH ₃	1	
1.0075	H	H	CH ₂ CH ₂ CH ₂ OCH ₃	H	F	NSO ₂ CH ₃	1	
1.0076	H	H	CH ₂ CH ₃	H	F	NSO ₂ CH ₃	1	
1.0077	H	H	CH ₃	H	H	NSO ₂ CH ₃	1	
1.0078	H	H	CH ₂ OCH ₃	H	H	NSO ₂ CH ₃	1	
1.0079	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	H	H	NSO ₂ CH ₃	1	
1.0080	H	H	CH ₂ CH ₂ CH ₂ OCH ₃	H	H	NSO ₂ CH ₃	1	
1.0081	H	H	CH ₂ CH ₃	H	H	NSO ₂ CH ₃	1	
1.0082	CH ₃	CH ₃	CH ₃	H	F	NSO ₂ CH ₃	0	
1.0083	CH ₃	CH ₃	CH ₃	H	Cl	NSO ₂ CH ₃	0	
1.0084	CH ₃	CH ₃	CH ₃	H	H	NSO ₂ CH ₃	0	
1.0085	CH ₃	CH ₃	CH ₃	CH ₃	F	NSO ₂ CH ₃	0	
1.0086	CH ₃	CH ₃	CH ₃	CH ₃	Cl	NSO ₂ CH ₃	0	
1.0087	CH ₃	CH ₃	CH ₃	CH ₃	H	NSO ₂ CH ₃	0	
1.0088	CH ₃	CH ₃	CH ₂ CH ₃	H	F	NSO ₂ CH ₃	0	

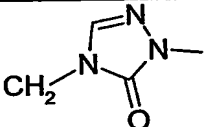
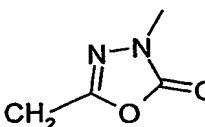
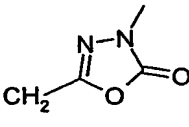
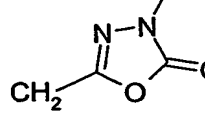
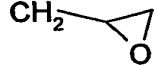
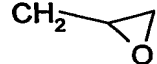
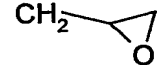
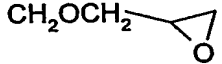
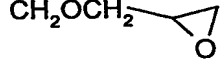
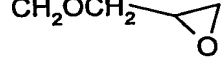
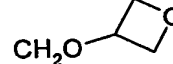
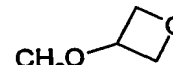
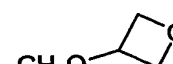
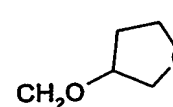
No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.0089	CH ₃	CH ₃	CH ₂ CH ₃	H	Cl	NSO ₂ CH ₃	0	
1.0090	CH ₃	CH ₃	CH ₂ CH ₃	H	H	NSO ₂ CH ₃	0	
1.0091	CH ₃	CH ₃	CH ₂ CH ₂ CH ₃	H	F	NSO ₂ CH ₃	0	
1.0092	CH ₃	CH ₃	CH ₂ CH ₂ CH ₃	H	Cl	NSO ₂ CH ₃	0	
1.0093	CH ₃	CH ₃	CH ₂ CH ₂ CH ₃	H	H	NSO ₂ CH ₃	0	
1.0094	CH ₃	CH ₃	CH ₂ OCH ₃	H	F	NSO ₂ CH ₃	0	
1.0095	CH ₃	CH ₃	CH ₂ OCH ₃	H	Cl	NSO ₂ CH ₃	0	
1.0096	CH ₃	CH ₃	CH ₂ OCH ₃	H	H	NSO ₂ CH ₃	0	
1.0097	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₃	H	F	NSO ₂ CH ₃	0	
1.0098	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₃	H	Cl	NSO ₂ CH ₃	0	
1.0099	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₃	H	H	NSO ₂ CH ₃	0	
1.0100	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	F	NSO ₂ CH ₃	0	
1.0101	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	Cl	NSO ₂ CH ₃	0	
1.0102	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	H	NSO ₂ CH ₃	0	
1.0103	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	F	NSO ₂ CH ₃	0	
1.0104	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	Cl	NSO ₂ CH ₃	0	
1.0105	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	H	NSO ₂ CH ₃	0	
1.0106	CH ₃	CH ₃	CH ₂ CH ₂ OCH ₃	H	F	NSO ₂ CH ₃	0	
1.0107	CH ₃	CH ₃	CH ₂ CH ₂ OCH ₃	H	Cl	NSO ₂ CH ₃	0	
1.0108	CH ₃	CH ₃	CH ₂ CH ₂ OCH ₃	H	H	NSO ₂ CH ₃	0	
1.0109	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CH	H	F	NSO ₂ CH ₃	0	
1.0110	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CH	H	Cl	NSO ₂ CH ₃	0	
1.0111	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CH	H	H	NSO ₂ CH ₃	0	
1.0112	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	H	F	NSO ₂ CH ₃	0	
1.0113	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	H	Cl	NSO ₂ CH ₃	0	
1.0114	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	H	H	NSO ₂ CH ₃	0	
1.0115	CH ₃	CH ₃	CH ₂ CH ₂ CH ₂ OCH ₃	H	F	NSO ₂ CH ₃	0	
1.0116	CH ₃	CH ₃	CH ₂ CH ₂ CH ₂ OCH ₃	H	Cl	NSO ₂ CH ₃	0	
1.0117	CH ₃	CH ₃	CH ₂ CH ₂ CH ₂ OCH ₃	H	H	NSO ₂ CH ₃	0	
1.0118	CH ₃	CH ₃	CH ₂ OCH ₂ OCH ₃	H	F	NSO ₂ CH ₃	0	
1.0119	CH ₃	CH ₃	CH ₂ OCH ₂ OCH ₃	H	Cl	NSO ₂ CH ₃	0	
1.0120	CH ₃	CH ₃	CH ₂ OCH ₂ OCH ₃	H	H	NSO ₂ CH ₃	0	
1.0121	CH ₃	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	H	F	NSO ₂ CH ₃	0	

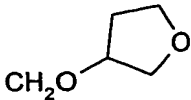
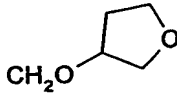
No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.0122	CH ₃	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	H	Cl	NSO ₂ CH ₃	0	
1.0123	CH ₃	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	H	H	NSO ₂ CH ₃	0	
1.0124	CH ₃	CH ₃	CF ₃	H	F	NSO ₂ CH ₃	0	
1.0125	CH ₃	CH ₃	CF ₃	H	Cl	NSO ₂ CH ₃	0	
1.0126	CH ₃	CH ₃	CF ₃	H	H	NSO ₂ CH ₃	0	
1.0127	CH ₃	CH ₃	CH ₂ OCH ₂ CF ₃	H	F	NSO ₂ CH ₃	0	
1.0128	CH ₃	CH ₃	CH ₂ OCH ₂ CF ₃	H	Cl	NSO ₂ CH ₃	0	
1.0129	CH ₃	CH ₃	CH ₂ OCH ₂ CF ₃	H	H	NSO ₂ CH ₃	0	
1.0130	CH ₃	CH ₃	CH ₂ OCH ₂ Ph	H	F	NSO ₂ CH ₃	0	
1.0131	CH ₃	CH ₃	CH ₂ OCH ₂ Ph	H	Cl	NSO ₂ CH ₃	0	
1.0132	CH ₃	CH ₃	CH ₂ OCH ₂ Ph	H	H	NSO ₂ CH ₃	0	
1.0133	CH ₃	CH ₃	CH ₂ OCH ₂ CH=CH ₂	H	F	NSO ₂ CH ₃	0	
1.0134	CH ₃	CH ₃	CH ₂ OCH ₂ CH=CH ₂	H	Cl	NSO ₂ CH ₃	0	
1.0135	CH ₃	CH ₃	CH ₂ OCH ₂ CH=CH ₂	H	H	NSO ₂ CH ₃	0	
1.0136	CH ₃	CH ₃		H	F	NSO ₂ CH ₃	0	
1.0137	CH ₃	CH ₃		H	Cl	NSO ₂ CH ₃	0	
1.0138	CH ₃	CH ₃		H	H	NSO ₂ CH ₃	0	
1.0139	CH ₃	CH ₃		H	F	NSO ₂ CH ₃	0	
1.0140	CH ₃	CH ₃		H	Cl	NSO ₂ CH ₃	0	
1.0141	CH ₃	CH ₃		H	H	NSO ₂ CH ₃	0	

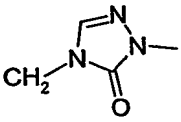
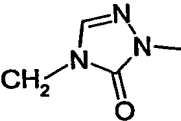
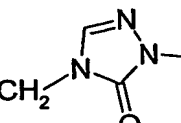
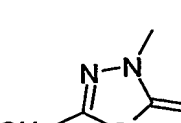
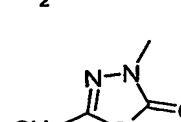
No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.0142	CH ₃	CH ₃		H	F	NSO ₂ CH ₃	0	
1.0143	CH ₃	CH ₃		H	Cl	NSO ₂ CH ₃	0	
1.0144	CH ₃	CH ₃		H	H	NSO ₂ CH ₃	0	
1.0145	CH ₃	CH ₃		H	F	NSO ₂ CH ₃	0	
1.0146	CH ₃	CH ₃		H	Cl	NSO ₂ CH ₃	0	
1.0147	CH ₃	CH ₃		H	H	NSO ₂ CH ₃	0	
1.0148	CH ₃	CH ₃		H	F	NSO ₂ CH ₃	0	
1.0149	CH ₃	CH ₃		H	Cl	NSO ₂ CH ₃	0	
1.0150	CH ₃	CH ₃		H	H	NSO ₂ CH ₃	0	
1.0151	CH ₃	CH ₃		H	F	NSO ₂ CH ₃	0	
1.0152	CH ₃	CH ₃		H	Cl	NSO ₂ CH ₃	0	
1.0153	CH ₃	CH ₃		H	H	NSO ₂ CH ₃	0	
1.0154	CH ₃	CH ₃	CH ₃	H	F	NSO ₂ CH ₃	1	
1.0155	CH ₃	CH ₃	CH ₂ OCH ₃	H	F	NSO ₂ CH ₃	1	
1.0156	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	F	NSO ₂ CH ₃	1	
1.0157	CH ₃	CH ₃	CH ₂ CH ₂ CH ₂ OCH ₃	H	F	NSO ₂ CH ₃	1	
1.0158	CH ₃	CH ₃	CH ₂ CH ₃	H	F	NSO ₂ CH ₃	1	
1.0159	CH ₃	CH ₃	CH ₃	H	H	NSO ₂ CH ₃	1	
1.0160	CH ₃	CH ₃	CH ₂ OCH ₃	H	H	NSO ₂ CH ₃	1	

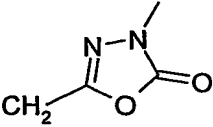
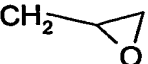
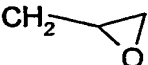
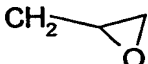
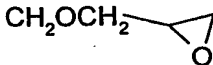
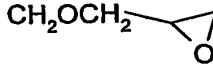
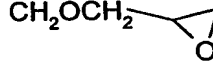
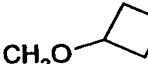
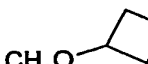
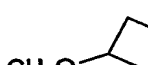

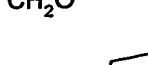
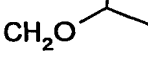
No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.0161	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	H	NSO ₂ CH ₃	1	
1.0162	CH ₃	CH ₃	CH ₂ CH ₂ CH ₂ OCH ₃	H	H	NSO ₂ CH ₃	1	
1.0163	CH ₃	CH ₃	CH ₂ CH ₃	H	H	NSO ₂ CH ₃	1	
1.0164	H	CH ₃	CH ₃	H	F	NSO ₂ CH ₃	0	
1.0165	H	CH ₃	CH ₃	H	Cl	NSO ₂ CH ₃	0	
1.0166	H	CH ₃	CH ₃	H	H	NSO ₂ CH ₃	0	
1.0167	H	CH ₃	CH ₃	CH ₃	F	NSO ₂ CH ₃	0	
1.0168	H	CH ₃	CH ₃	CH ₃	Cl	NSO ₂ CH ₃	0	
1.0169	H	CH ₃	CH ₃	CH ₃	H	NSO ₂ CH ₃	0	
1.0170	H	CH ₃	CH ₂ CH ₃	H	F	NSO ₂ CH ₃	0	
1.0171	H	CH ₃	CH ₂ CH ₃	H	Cl	NSO ₂ CH ₃	0	
1.0172	H	CH ₃	CH ₂ CH ₃	H	H	NSO ₂ CH ₃	0	
1.0173	H	CH ₃	CH ₂ CH ₂ CH ₃	H	F	NSO ₂ CH ₃	0	
1.0174	H	CH ₃	CH ₂ CH ₂ CH ₃	H	Cl	NSO ₂ CH ₃	0	
1.0175	H	CH ₃	CH ₂ CH ₂ CH ₃	H	H	NSO ₂ CH ₃	0	
1.0176	H	CH ₃	CH ₂ OCH ₃	H	F	NSO ₂ CH ₃	0	
1.0177	H	CH ₃	CH ₂ OCH ₃	H	Cl	NSO ₂ CH ₃	0	
1.0178	H	CH ₃	CH ₂ OCH ₃	H	H	NSO ₂ CH ₃	0	
1.0179	H	CH ₃	CH ₂ OCH ₂ CH ₃	H	F	NSO ₂ CH ₃	0	
1.0180	H	CH ₃	CH ₂ OCH ₂ CH ₃	H	Cl	NSO ₂ CH ₃	0	
1.0181	H	CH ₃	CH ₂ OCH ₂ CH ₃	H	H	NSO ₂ CH ₃	0	
1.0182	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	F	NSO ₂ CH ₃	0	
1.0183	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	Cl	NSO ₂ CH ₃	0	
1.0184	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	H	NSO ₂ CH ₃	0	
1.0185	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	F	NSO ₂ CH ₃	0	
1.0186	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	Cl	NSO ₂ CH ₃	0	
1.0187	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	H	NSO ₂ CH ₃	0	
1.0188	H	CH ₃	CH ₂ CH ₂ OCH ₃	H	F	NSO ₂ CH ₃	0	
1.0189	H	CH ₃	CH ₂ CH ₂ OCH ₃	H	Cl	NSO ₂ CH ₃	0	
1.0190	H	CH ₃	CH ₂ CH ₂ OCH ₃	H	H	NSO ₂ CH ₃	0	
1.0191	H	CH ₃	CH ₂ OCH ₂ C≡CH	H	F	NSO ₂ CH ₃	0	
1.0192	H	CH ₃	CH ₂ OCH ₂ C≡CH	H	Cl	NSO ₂ CH ₃	0	
1.0193	H	CH ₃	CH ₂ OCH ₂ C≡CH	H	H	NSO ₂ CH ₃	0	

No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.0194	H	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	H	F	NSO ₂ CH ₃	0	
1.0195	H	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	H	Cl	NSO ₂ CH ₃	0	
1.0196	H	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	H	H	NSO ₂ CH ₃	0	
1.0197	H	CH ₃	CH ₂ CH ₂ CH ₂ OCH ₃	H	F	NSO ₂ CH ₃	0	
1.0198	H	CH ₃	CH ₂ CH ₂ CH ₂ OCH ₃	H	Cl	NSO ₂ CH ₃	0	
1.0199	H	CH ₃	CH ₂ CH ₂ CH ₂ OCH ₃	H	H	NSO ₂ CH ₃	0	
1.0200	H	CH ₃	CH ₂ OCH ₂ OCH ₃	H	F	NSO ₂ CH ₃	0	
1.0201	H	CH ₃	CH ₂ OCH ₂ OCH ₃	H	Cl	NSO ₂ CH ₃	0	
1.0202	H	CH ₃	CH ₂ OCH ₂ OCH ₃	H	H	NSO ₂ CH ₃	0	
1.0203	H	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	H	F	NSO ₂ CH ₃	0	
1.0204	H	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	H	Cl	NSO ₂ CH ₃	0	
1.0205	H	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	H	H	NSO ₂ CH ₃	0	
1.0206	H	CH ₃	CF ₃	H	F	NSO ₂ CH ₃	0	
1.0207	H	CH ₃	CF ₃	H	Cl	NSO ₂ CH ₃	0	
1.0208	H	CH ₃	CF ₃	H	H	NSO ₂ CH ₃	0	
1.0209	H	CH ₃	CH ₂ OCH ₂ CF ₃	H	F	NSO ₂ CH ₃	0	
1.0210	H	CH ₃	CH ₂ OCH ₂ CF ₃	H	Cl	NSO ₂ CH ₃	0	
1.0211	H	CH ₃	CH ₂ OCH ₂ CF ₃	H	H	NSO ₂ CH ₃	0	
1.0212	H	CH ₃	CH ₂ OCH ₂ Ph	H	F	NSO ₂ CH ₃	0	
1.0213	H	CH ₃	CH ₂ OCH ₂ Ph	H	Cl	NSO ₂ CH ₃	0	
1.0214	H	CH ₃	CH ₂ OCH ₂ Ph	H	H	NSO ₂ CH ₃	0	
1.0215	H	CH ₃	CH ₂ OCH ₂ CH=CH ₂	H	F	NSO ₂ CH ₃	0	
1.0216	H	CH ₃	CH ₂ OCH ₂ CH=CH ₂	H	Cl	NSO ₂ CH ₃	0	
1.0217	H	CH ₃	CH ₂ OCH ₂ CH=CH ₂	H	H	NSO ₂ CH ₃	0	
1.0218	H	CH ₃		H	F	NSO ₂ CH ₃	0	
1.0219	H	CH ₃		H	Cl	NSO ₂ CH ₃	0	

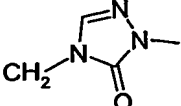
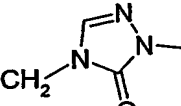
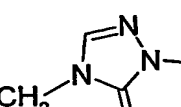
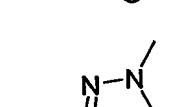
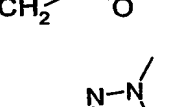
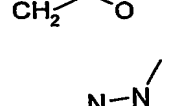
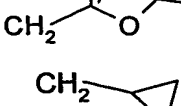
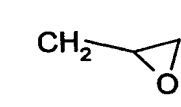
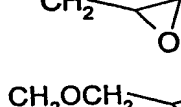



No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.0220	H	CH ₃		H	H	NSO ₂ CH ₃	0	
1.0221	H	CH ₃		H	F	NSO ₂ CH ₃	0	
1.0222	H	CH ₃		H	Cl	NSO ₂ CH ₃	0	
1.0223	H	CH ₃		H	H	NSO ₂ CH ₃	0	
1.0224	H	CH ₃		H	F	NSO ₂ CH ₃	0	
1.0225	H	CH ₃		H	Cl	NSO ₂ CH ₃	0	
1.0226	H	CH ₃		H	H	NSO ₂ CH ₃	0	
1.0227	H	CH ₃		H	F	NSO ₂ CH ₃	0	
1.0228	H	CH ₃		H	Cl	NSO ₂ CH ₃	0	
1.0229	H	CH ₃		H	H	NSO ₂ CH ₃	0	
1.0230	H	CH ₃		H	F	NSO ₂ CH ₃	0	
1.0231	H	CH ₃		H	Cl	NSO ₂ CH ₃	0	
1.0232	H	CH ₃		H	H	NSO ₂ CH ₃	0	
1.0233	H	CH ₃		H	F	NSO ₂ CH ₃	0	

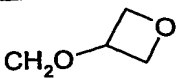
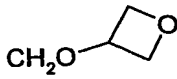
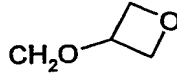
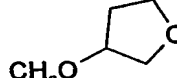
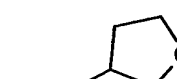
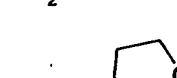
No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.0234	H	CH ₃		H	Cl	NSO ₂ CH ₃	0	
1.0235	H	CH ₃		H	H	NSO ₂ CH ₃	0	
1.0236	H	CH ₃	CH ₃	H	F	NSO ₂ CH ₃	1	
1.0237	H	CH ₃	CH ₂ OCH ₃	H	F	NSO ₂ CH ₃	1	
1.0238	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	F	NSO ₂ CH ₃	1	
1.0239	H	CH ₃	CH ₂ CH ₂ CH ₂ OCH ₃	H	F	NSO ₂ CH ₃	1	
1.0240	H	CH ₃	CH ₂ CH ₃	H	F	NSO ₂ CH ₃	1	
1.0241	H	CH ₃	CH ₃	H	H	NSO ₂ CH ₃	1	
1.0242	H	CH ₃	CH ₂ OCH ₃	H	H	NSO ₂ CH ₃	1	
1.0243	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	H	NSO ₂ CH ₃	1	
1.0244	H	CH ₃	CH ₂ CH ₂ CH ₂ OCH ₃	H	H	NSO ₂ CH ₃	1	
1.0245	H	CH ₃	CH ₂ CH ₃	H	H	NSO ₂ CH ₃	1	
1.0246	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	H	F	O	0	
1.0247	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	H	Cl	O	0	
1.0248	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	H	H	O	0	
1.0249	H	H	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	F	O	0	
1.0250	H	H	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	Cl	O	0	
1.0251	H	H	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	H	O	0	
1.0252	H	H	CH ₂ N(CH ₃)SO ₂ CH ₃	H	F	O	0	
1.0253	H	H	CH ₂ N(CH ₃)SO ₂ CH ₃	H	Cl	O	0	
1.0254	H	H	CH ₂ N(CH ₃)SO ₂ CH ₃	H	H	O	0	
1.0255	H	H	CH ₂ OCH ₂ Ph	H	F	O	0	
1.0256	H	H	CH ₂ OCH ₂ Ph	H	Cl	O	0	
1.0257	H	H	CH ₂ OCH ₂ Ph	H	H	O	0	
1.0258	H	H	CH ₂ OCH ₂ CH ₂ OH	H	F	O	0	
1.0259	H	H	CH ₂ OCH ₂ CH ₂ OH	H	Cl	O	0	
1.0260	H	H	CH ₂ OCH ₂ CH ₂ OH	H	H	O	0	
1.0261	H	H	CH ₂ OCH ₂ CH ₂ Cl	H	F	O	0	
1.0262	H	H	CH ₂ OCH ₂ CH ₂ Cl	H	Cl	O	0	

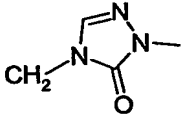
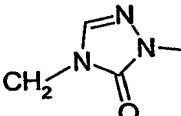
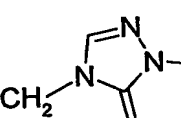
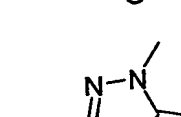
No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.0263	H	H	CH ₂ OCH ₂ CH ₂ Cl	H	H	O	0	
1.0264	H	H	CH ₂ OCH ₂ CF ₃	H	F	O	0	
1.0265	H	H	CH ₂ OCH ₂ CF ₃	H	Cl	O	0	
1.0266	H	H	CH ₂ OCH ₂ CF ₃	H	H	O	0	
1.0267	H	H	CH ₂ OCH ₂ CH=CH ₂	H	F	O	0	
1.0268	H	H	CH ₂ OCH ₂ CH=CH ₂	H	Cl	O	0	
1.0269	H	H	CH ₂ OCH ₂ CH=CH ₂	H	H	O	0	
1.0270	H	H	CH ₂ O(CO)CH ₃	H	F	O	0	
1.0271	H	H	CH ₂ O(CO)CH ₃	H	Cl	O	0	
1.0272	H	H	CH ₂ O(CO)CH ₃	H	H	O	0	
1.0273	H	H	CH ₂ OCH ₂ C≡CH	H	F	O	0	
1.0274	H	H	CH ₂ OCH ₂ C≡CH	H	Cl	O	0	
1.0275	H	H	CH ₂ OCH ₂ C≡CH	H	H	O	0	
1.0276	H	H	CH ₂ OCH ₂ C≡CCH ₃	H	F	O	0	
1.0277	H	H	CH ₂ OCH ₂ C≡CCH ₃	H	Cl	O	0	
1.0278	H	H	CH ₂ OCH ₂ C≡CCH ₃	H	H	O	0	
1.0279	H	H		H	F	O	0	
1.0280	H	H		H	Cl	O	0	
1.0281	H	H		H	H	O	0	
1.0282	H	H		H	F	O	0	
1.0283	H	H		H	Cl	O	0	

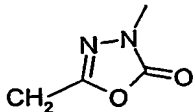
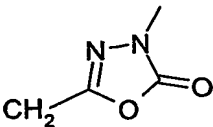
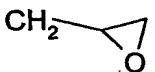
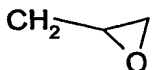
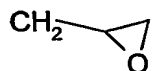
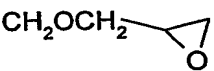
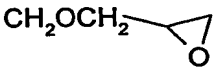
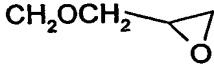
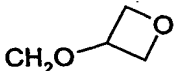
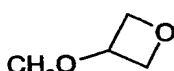
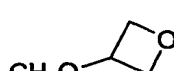

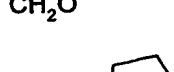
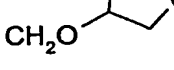
No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.0284	H	H		H	H	O	0	
1.0285	H	H		H	F	O	0	
1.0286	H	H		H	Cl	O	0	
1.0287	H	H		H	H	O	0	
1.0288	H	H		H	F	O	0	
1.0289	H	H		H	Cl	O	0	
1.0290	H	H		H	H	O	0	
1.0291	H	H		H	F	O	0	
1.0292	H	H		H	Cl	O	0	
1.0293	H	H		H	H	O	0	
1.0294	H	H		H	F	O	0	
1.0295	H	H		H	Cl	O	0	
1.0296	H	H		H	H	O	0	
1.0297	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	H	F	O	1	
1.0298	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	H	H	O	1	
1.0299	H	H	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	F	O	1	
1.0300	H	H	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	H	O	1	

No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.0301	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	F	O	0	see Example P10
1.0302	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	Cl	O	0	
1.0303	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	H	O	0	
1.0304	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	F	O	0	
1.0305	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	Cl	O	0	
1.0306	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	H	O	0	
1.0307	CH ₃	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	H	F	O	0	
1.0308	CH ₃	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	H	Cl	O	0	
1.0309	CH ₃	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	H	H	O	0	
1.0310	CH ₃	CH ₃	CH ₂ OCH ₂ Ph	H	F	O	0	
1.0311	CH ₃	CH ₃	CH ₂ OCH ₂ Ph	H	Cl	O	0	
1.0312	CH ₃	CH ₃	CH ₂ OCH ₂ Ph	H	H	O	0	
1.0313	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OH	H	F	O	0	
1.0314	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OH	H	Cl	O	0	
1.0315	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OH	H	H	O	0	
1.0316	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	H	F	O	0	
1.0317	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	H	Cl	O	0	
1.0318	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	H	H	O	0	
1.0319	CH ₃	CH ₃	CH ₂ OCH ₂ CF ₃	H	F	O	0	
1.0320	CH ₃	CH ₃	CH ₂ OCH ₂ CF ₃	H	Cl	O	0	
1.0321	CH ₃	CH ₃	CH ₂ OCH ₂ CF ₃	H	H	O	0	
1.0322	CH ₃	CH ₃	CH ₂ OCH ₂ CH=CH ₂	H	F	O	0	
1.0323	CH ₃	CH ₃	CH ₂ OCH ₂ CH=CH ₂	H	Cl	O	0	
1.0324	CH ₃	CH ₃	CH ₂ OCH ₂ CH=CH ₂	H	H	O	0	
1.0325	CH ₃	CH ₃	CH ₂ O(CO)CH ₃	H	F	O	0	
1.0326	CH ₃	CH ₃	CH ₂ O(CO)CH ₃	H	Cl	O	0	
1.0327	CH ₃	CH ₃	CH ₂ O(CO)CH ₃	H	H	O	0	
1.0328	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CH	H	F	O	0	
1.0329	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CH	H	Cl	O	0	
1.0330	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CH	H	H	O	0	
1.0331	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	H	F	O	0	
1.0332	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	H	Cl	O	0	

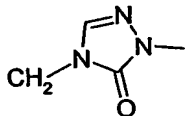
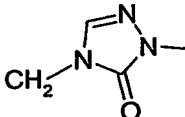
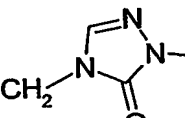
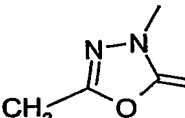
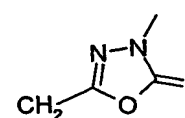
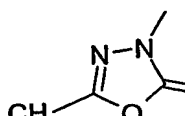
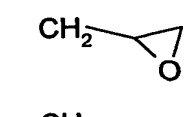
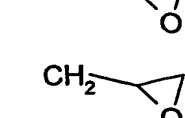

No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.0333	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	H	H	O	0	
1.0334	CH ₃	CH ₃		H	F	O	0	
1.0335	CH ₃	CH ₃		H	Cl	O	0	
1.0336	CH ₃	CH ₃		H	H	O	0	
1.0337	CH ₃	CH ₃		H	F	O	0	
1.0338	CH ₃	CH ₃		H	Cl	O	0	
1.0339	CH ₃	CH ₃		H	H	O	0	
1.0340	CH ₃	CH ₃		H	F	O	0	
1.0341	CH ₃	CH ₃		H	Cl	O	0	
1.0342	CH ₃	CH ₃		H	H	O	0	
1.0343	CH ₃	CH ₃	CH ₂ OCH ₂ 	H	F	O	0	
1.0344	CH ₃	CH ₃	CH ₂ OCH ₂ 	H	Cl	O	0	
1.0345	CH ₃	CH ₃	CH ₂ OCH ₂ 	H	H	O	0	










No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.0346	CH ₃	CH ₃		H	F	O	0	
1.0347	CH ₃	CH ₃		H	Cl	O	0	
1.0348	CH ₃	CH ₃		H	H	O	0	
1.0349	CH ₃	CH ₃		H	F	O	0	
1.0350	CH ₃	CH ₃		H	Cl	O	0	
1.0351	CH ₃	CH ₃		H	H	O	0	
1.0352	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	F	O	1	
1.0353	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	H	O	1	
1.0354	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	F	O	1	
1.0355	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	H	O	1	
1.0356	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	F	O	0	
1.0357	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	Cl	O	0	
1.0358	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	H	O	0	
1.0359	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	F	O	0	
1.0360	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	Cl	O	0	
1.0361	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	H	O	0	
1.0362	H	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	H	F	O	0	
1.0363	H	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	H	Cl	O	0	
1.0364	H	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	H	H	O	0	
1.0365	H	CH ₃	CH ₂ OCH ₂ Ph	H	F	O	0	
1.0366	H	CH ₃	CH ₂ OCH ₂ Ph	H	Cl	O	0	
1.0367	H	CH ₃	CH ₂ OCH ₂ Ph	H	H	O	0	
1.0368	H	CH ₃	CH ₂ OCH ₂ CH ₂ OH	H	F	O	0	
1.0369	H	CH ₃	CH ₂ OCH ₂ CH ₂ OH	H	Cl	O	0	
1.0370	H	CH ₃	CH ₂ OCH ₂ CH ₂ OH	H	H	O	0	

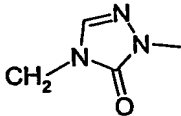
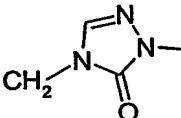
No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.0371	H	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	H	F	O	0	
1.0372	H	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	H	Cl	O	0	
1.0373	H	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	H	H	O	0	
1.0374	H	CH ₃	CH ₂ OCH ₂ CF ₃	H	F	O	0	
1.0375	H	CH ₃	CH ₂ OCH ₂ CF ₃	H	Cl	O	0	
1.0376	H	CH ₃	CH ₂ OCH ₂ CF ₃	H	H	O	0	
1.0377	H	CH ₃	CH ₂ OCH ₂ CH=CH ₂	H	F	O	0	
1.0378	H	CH ₃	CH ₂ OCH ₂ CH=CH ₂	H	Cl	O	0	
1.0379	H	CH ₃	CH ₂ OCH ₂ CH=CH ₂	H	H	O	0	
1.0380	H	CH ₃	CH ₂ O(CO)CH ₃	H	F	O	0	
1.0381	H	CH ₃	CH ₂ O(CO)CH ₃	H	Cl	O	0	
1.0382	H	CH ₃	CH ₂ O(CO)CH ₃	H	H	O	0	
1.0383	H	CH ₃	CH ₂ OCH ₂ C≡CH	H	F	O	0	
1.0384	H	CH ₃	CH ₂ OCH ₂ C≡CH	H	Cl	O	0	
1.0385	H	CH ₃	CH ₂ OCH ₂ C≡CH	H	H	O	0	
1.0386	H	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	H	F	O	0	
1.0387	H	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	H	Cl	O	0	
1.0388	H	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	H	H	O	0	
1.0389	H	CH ₃		H	F	O	0	
1.0390	H	CH ₃		H	Cl	O	0	
1.0391	H	CH ₃		H	H	O	0	
1.0392	H	CH ₃		H	F	O	0	

No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.0393	H	CH ₃		H	Cl	O	0	
1.0394	H	CH ₃		H	H	O	0	
1.0395	H	CH ₃		H	F	O	0	
1.0396	H	CH ₃		H	Cl	O	0	
1.0397	H	CH ₃		H	H	O	0	
1.0398	H	CH ₃		H	F	O	0	
1.0399	H	CH ₃		H	Cl	O	0	
1.0400	H	CH ₃		H	H	O	0	
1.0401	H	CH ₃		H	F	O	0	
1.0402	H	CH ₃		H	Cl	O	0	
1.0403	H	CH ₃		H	H	O	0	
1.0404	H	CH ₃		H	F	O	0	
1.0405	H	CH ₃		H	Cl	O	0	
1.0406	H	CH ₃		H	H	O	0	
1.0407	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	F	O	1	

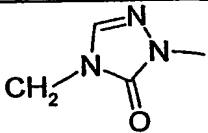
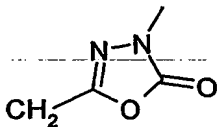
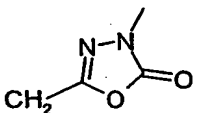
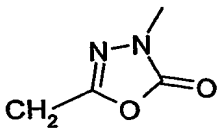
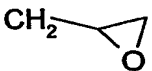
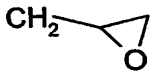
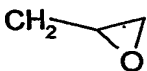
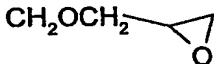
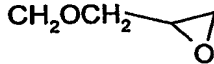
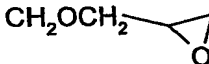
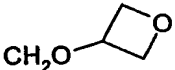
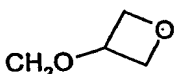
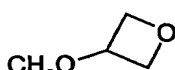
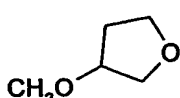
No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.0408	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	H	O	1	
1.0409	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	F	O	1	
1.0410	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	H	O	1	
1.0411	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	H	F	CH ₂	0	¹ H NMR (300 MHz; CDCl ₃) δ 17.0 (broad s, 1H); 7.62 (s, 2H); 6.47 (m, 1H); 6.35 (m, 1H); 4.73 (m, 2H); 3.50 (m, 3H); 3.39 (m, 2H); 3.31 (s, 3H); 3.30 (m, 1H); 2.72-2.50 (m, 2H).
1.0412	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	H	Cl	CH ₂	0	
1.0413	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	H	H	CH ₂	0	
1.0414	H	H	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	F	CH ₂	0	
1.0415	H	H	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	Cl	CH ₂	0	
1.0416	H	H	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	H	CH ₂	0	
1.0417	H	H	CH ₂ N(CH ₃)SO ₂ CH ₃	H	F	CH ₂	0	
1.0418	H	H	CH ₂ N(CH ₃)SO ₂ CH ₃	H	Cl	CH ₂	0	
1.0419	H	H	CH ₂ N(CH ₃)SO ₂ CH ₃	H	H	CH ₂	0	
1.0420	H	H	CH ₂ OCH ₂ Ph	H	F	CH ₂	0	
1.0421	H	H	CH ₂ OCH ₂ Ph	H	Cl	CH ₂	0	
1.0422	H	H	CH ₂ OCH ₂ Ph	H	H	CH ₂	0	
1.0423	H	H	CH ₂ OCH ₂ CH ₂ OH	H	F	CH ₂	0	
1.0424	H	H	CH ₂ OCH ₂ CH ₂ OH	H	Cl	CH ₂	0	
1.0425	H	H	CH ₂ OCH ₂ CH ₂ OH	H	H	CH ₂	0	
1.0426	H	H	CH ₂ OCH ₂ CH ₂ Cl	H	F	CH ₂	0	
1.0427	H	H	CH ₂ OCH ₂ CH ₂ Cl	H	Cl	CH ₂	0	
1.0428	H	H	CH ₂ OCH ₂ CH ₂ Cl	H	H	CH ₂	0	
1.0429	H	H	CH ₂ OCH ₂ CF ₃	H	F	CH ₂	0	
1.0430	H	H	CH ₂ OCH ₂ CF ₃	H	Cl	CH ₂	0	
1.0431	H	H	CH ₂ OCH ₂ CF ₃	H	H	CH ₂	0	
1.0432	H	H	CH ₂ OCH ₂ CH=CH ₂	H	F	CH ₂	0	
1.0433	H	H	CH ₂ OCH ₂ CH=CH ₂	H	Cl	CH ₂	0	
1.0434	H	H	CH ₂ OCH ₂ CH=CH ₂	H	H	CH ₂	0	
1.0435	H	H	CH ₂ O(CO)CH ₃	H	F	CH ₂	0	

No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.0436	H	H	CH ₂ O(CO)CH ₃	H	Cl	CH ₂	0	
1.0437	H	H	CH ₂ O(CO)CH ₃	H	H	CH ₂	0	
1.0438	H	H	CH ₂ OCH ₂ C≡CH	H	F	CH ₂	0	
1.0439	H	H	CH ₂ OCH ₂ C≡CH	H	Cl	CH ₂	0	
1.0440	H	H	CH ₂ OCH ₂ C≡CH	H	H	CH ₂	0	
1.0441	H	H	CH ₂ OCH ₂ C≡CCH ₃	H	F	CH ₂	0	
1.0442	H	H	CH ₂ OCH ₂ C≡CCH ₃	H	Cl	CH ₂	0	
1.0443	H	H	CH ₂ OCH ₂ C≡CCH ₃	H	H	CH ₂	0	
1.0444	H	H		H	F	CH ₂	0	
1.0445	H	H		H	Cl	CH ₂	0	
1.0446	H	H		H	H	CH ₂	0	
1.0447	H	H		H	F	CH ₂	0	
1.0448	H	H		H	Cl	CH ₂	0	
1.0449	H	H		H	H	CH ₂	0	
1.0450	H	H		H	F	CH ₂	0	
1.0451	H	H		H	Cl	CH ₂	0	
1.0452	H	H		H	H	CH ₂	0	

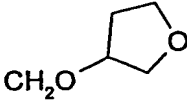
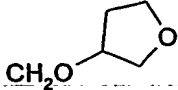
No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.0453	H	H	CH ₂ OCH ₂ 	H	F	CH ₂	0	
1.0454	H	H	CH ₂ OCH ₂ 	H	Cl	CH ₂	0	
1.0455	H	H	CH ₂ OCH ₂ 	H	H	CH ₂	0	
1.0456	H	H	CH ₂ O 	H	F	CH ₂	0	
1.0457	H	H	CH ₂ O 	H	Cl	CH ₂	0	
1.0458	H	H	CH ₂ O 	H	H	CH ₂	0	
1.0459	H	H	CH ₂ O 	H	F	CH ₂	0	
1.0460	H	H	CH ₂ O 	H	Cl	CH ₂	0	
1.0461	H	H	CH ₂ O 	H	H	CH ₂	0	
1.0462	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	H	F	CH ₂	1	
1.0463	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	H	H	CH ₂	1	
1.0464	H	H	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	F	CH ₂	1	
1.0465	H	H	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	H	CH ₂	1	
1.0466	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	F	CH ₂	0	
1.0467	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	Cl	CH ₂	0	
1.0468	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	H	CH ₂	0	
1.0469	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	F	CH ₂	0	
1.0470	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	Cl	CH ₂	0	
1.0471	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	H	CH ₂	0	
1.0472	CH ₃	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	H	F	CH ₂	0	
1.0473	CH ₃	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	H	Cl	CH ₂	0	
1.0474	CH ₃	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	H	H	CH ₂	0	

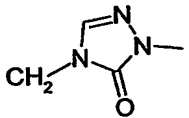
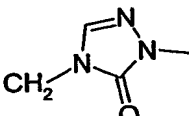
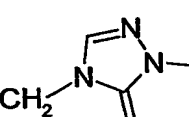
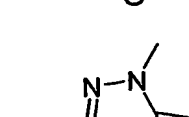
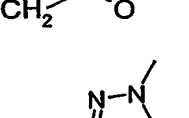
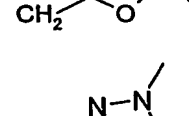
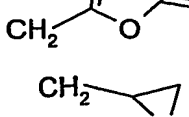
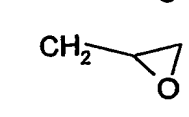
No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.0475	CH ₃	CH ₃	CH ₂ OCH ₂ Ph	H	F	CH ₂	0	
1.0476	CH ₃	CH ₃	CH ₂ OCH ₂ Ph	H	Cl	CH ₂	0	
1.0477	CH ₃	CH ₃	CH ₂ OCH ₂ Ph	H	H	CH ₂	0	
1.0478	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OH	H	F	CH ₂	0	
1.0479	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OH	H	Cl	CH ₂	0	
1.0480	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OH	H	H	CH ₂	0	
1.0481	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	H	F	CH ₂	0	
1.0482	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	H	Cl	CH ₂	0	
1.0483	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	H	H	CH ₂	0	
1.0484	CH ₃	CH ₃	CH ₂ OCH ₂ CF ₃	H	F	CH ₂	0	
1.0485	CH ₃	CH ₃	CH ₂ OCH ₂ CF ₃	H	Cl	CH ₂	0	
1.0486	CH ₃	CH ₃	CH ₂ OCH ₂ CF ₃	H	H	CH ₂	0	
1.0487	CH ₃	CH ₃	CH ₂ OCH ₂ CH=CH ₂	H	F	CH ₂	0	
1.0488	CH ₃	CH ₃	CH ₂ OCH ₂ CH=CH ₂	H	Cl	CH ₂	0	
1.0489	CH ₃	CH ₃	CH ₂ OCH ₂ CH=CH ₂	H	H	CH ₂	0	
1.0490	CH ₃	CH ₃	CH ₂ O(CO)CH ₃	H	F	CH ₂	0	
1.0491	CH ₃	CH ₃	CH ₂ O(CO)CH ₃	H	Cl	CH ₂	0	
1.0492	CH ₃	CH ₃	CH ₂ O(CO)CH ₃	H	H	CH ₂	0	
1.0493	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CH	H	F	CH ₂	0	
1.0494	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CH	H	Cl	CH ₂	0	
1.0495	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CH	H	H	CH ₂	0	
1.0496	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	H	F	CH ₂	0	
1.0497	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	H	Cl	CH ₂	0	
1.0498	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	H	H	CH ₂	0	
1.0499	CH ₃	CH ₃		H	F	CH ₂	0	
1.0500	CH ₃	CH ₃		H	Cl	CH ₂	0	

- 71 -

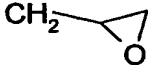
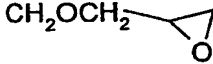

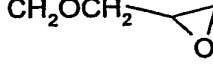
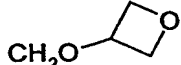
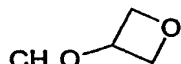
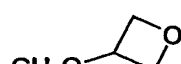

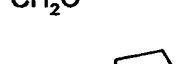
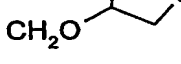
No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.0501	CH ₃	CH ₃		H	H	CH ₂	0	
1.0502	CH ₃	CH ₃		H	F	CH ₂	0	
1.0503	CH ₃	CH ₃		H	Cl	CH ₂	0	
1.0504	CH ₃	CH ₃		H	H	CH ₂	0	
1.0505	CH ₃	CH ₃		H	F	CH ₂	0	
1.0506	CH ₃	CH ₃		H	Cl	CH ₂	0	
1.0507	CH ₃	CH ₃		H	H	CH ₂	0	
1.0508	CH ₃	CH ₃		H	F	CH ₂	0	
1.0509	CH ₃	CH ₃		H	Cl	CH ₂	0	
1.0510	CH ₃	CH ₃		H	H	CH ₂	0	
1.0511	CH ₃	CH ₃		H	F	CH ₂	0	
1.0512	CH ₃	CH ₃		H	Cl	CH ₂	0	
1.0513	CH ₃	CH ₃		H	H	CH ₂	0	
1.0514	CH ₃	CH ₃		H	F	CH ₂	0	

- 72 -

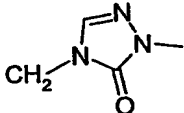
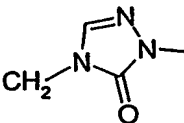
No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.0515	CH ₃	CH ₃		H	Cl	CH ₂	0	
1.0516	CH ₃	CH ₃		H	H	CH ₂	0	
1.0517	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	F	CH ₂	1	
1.0518	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	H	CH ₂	1	
1.0519	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	F	CH ₂	1	
1.0520	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	H	CH ₂	1	
1.0521	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	F	CH ₂	0	
1.0522	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	Cl	CH ₂	0	
1.0523	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	H	CH ₂	0	
1.0524	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	F	CH ₂	0	
1.0525	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	Cl	CH ₂	0	
1.0526	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	H	CH ₂	0	
1.0527	H	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	H	F	CH ₂	0	
1.0528	H	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	H	Cl	CH ₂	0	
1.0529	H	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	H	H	CH ₂	0	
1.0530	H	CH ₃	CH ₂ OCH ₂ Ph	H	F	CH ₂	0	
1.0531	H	CH ₃	CH ₂ OCH ₂ Ph	H	Cl	CH ₂	0	
1.0532	H	CH ₃	CH ₂ OCH ₂ Ph	H	H	CH ₂	0	
1.0533	H	CH ₃	CH ₂ OCH ₂ CH ₂ OH	H	F	CH ₂	0	
1.0534	H	CH ₃	CH ₂ OCH ₂ CH ₂ OH	H	Cl	CH ₂	0	
1.0535	H	CH ₃	CH ₂ OCH ₂ CH ₂ OH	H	H	CH ₂	0	
1.0536	H	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	H	F	CH ₂	0	
1.0537	H	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	H	Cl	CH ₂	0	
1.0538	H	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	H	H	CH ₂	0	
1.0539	H	CH ₃	CH ₂ OCH ₂ CF ₃	H	F	CH ₂	0	
1.0540	H	CH ₃	CH ₂ OCH ₂ CF ₃	H	Cl	CH ₂	0	
1.0541	H	CH ₃	CH ₂ OCH ₂ CF ₃	H	H	CH ₂	0	
1.0542	H	CH ₃	CH ₂ OCH ₂ CH=CH ₂	H	F	CH ₂	0	
1.0543	H	CH ₃	CH ₂ OCH ₂ CH=CH ₂	H	Cl	CH ₂	0	

No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.0544	H	CH ₃	CH ₂ OCH ₂ CH=CH ₂	H	H	CH ₂	0	
1.0545	H	CH ₃	CH ₂ O(CO)CH ₃	H	F	CH ₂	0	
1.0546	H	CH ₃	CH ₂ O(CO)CH ₃	H	Cl	CH ₂	0	
1.0547	H	CH ₃	CH ₂ O(CO)CH ₃	H	H	CH ₂	0	
1.0548	H	CH ₃	CH ₂ OCH ₂ C≡CH	H	F	CH ₂	0	
1.0549	H	CH ₃	CH ₂ OCH ₂ C≡CH	H	Cl	CH ₂	0	
1.0550	H	CH ₃	CH ₂ OCH ₂ C≡CH	H	H	CH ₂	0	
1.0551	H	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	H	F	CH ₂	0	
1.0552	H	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	H	Cl	CH ₂	0	
1.0553	H	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	H	H	CH ₂	0	
1.0554	H	CH ₃		H	F	CH ₂	0	
1.0555	H	CH ₃		H	Cl	CH ₂	0	
1.0556	H	CH ₃		H	H	CH ₂	0	
1.0557	H	CH ₃		H	F	CH ₂	0	
1.0558	H	CH ₃		H	Cl	CH ₂	0	
1.0559	H	CH ₃		H	H	CH ₂	0	
1.0560	H	CH ₃		H	F	CH ₂	0	
1.0561	H	CH ₃		H	Cl	CH ₂	0	

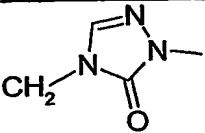
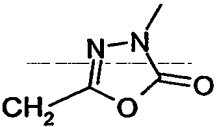
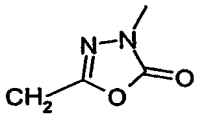
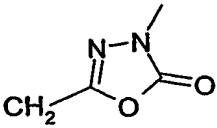
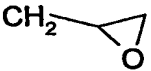
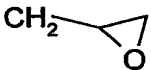
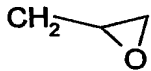
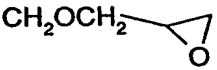
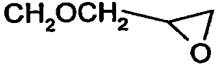
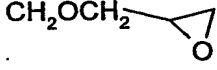
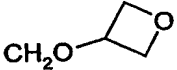
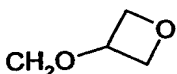
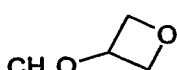
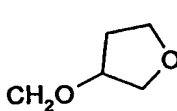
- 74 -

No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.0562	H	CH ₃		H	H	CH ₂	0	
1.0563	H	CH ₃		H	F	CH ₂	0	
1.0564	H	CH ₃		H	Cl	CH ₂	0	
1.0565	H	CH ₃		H	H	CH ₂	0	
1.0566	H	CH ₃		H	F	CH ₂	0	
1.0567	H	CH ₃		H	Cl	CH ₂	0	
1.0568	H	CH ₃		H	H	CH ₂	0	
1.0569	H	CH ₃		H	F	CH ₂	0	
1.0570	H	CH ₃		H	Cl	CH ₂	0	
1.0571	H	CH ₃		H	H	CH ₂	0	
1.0572	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	F	CH ₂	1	
1.0573	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	H	CH ₂	1	
1.0574	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	F	CH ₂	1	
1.0575	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	H	CH ₂	1	
1.0576	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	H	F	CH ₂ CH ₂	0	resin
1.0577	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	H	Cl	CH ₂ CH ₂	0	
1.0578	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	H	H	CH ₂ CH ₂	0	
1.0579	H	H	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	F	CH ₂ CH ₂	0	
1.0580	H	H	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	Cl	CH ₂ CH ₂	0	
1.0581	H	H	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	H	CH ₂ CH ₂	0	
1.0582	H	H	CH ₂ N(CH ₃)SO ₂ CH ₃	H	F	CH ₂ CH ₂	0	

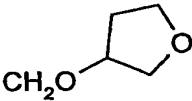
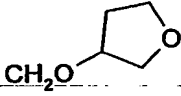
- 75 -

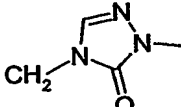
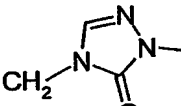
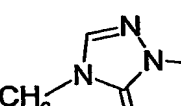
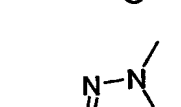
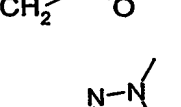
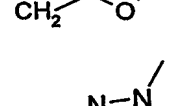
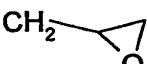
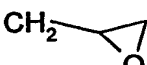
No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.0583	H	H	CH ₂ N(CH ₃)SO ₂ CH ₃	H	Cl	CH ₂ CH ₂	0	
1.0584	H	H	CH ₂ N(CH ₃)SO ₂ CH ₃	H	H	CH ₂ CH ₂	0	
1.0585	H	H	CH ₂ OCH ₂ Ph	H	F	CH ₂ CH ₂	0	
1.0586	H	H	CH ₂ OCH ₂ Ph	H	Cl	CH ₂ CH ₂	0	
1.0587	H	H	CH ₂ OCH ₂ Ph	H	H	CH ₂ CH ₂	0	
1.0588	H	H	CH ₂ OCH ₂ CH ₂ OH	H	F	CH ₂ CH ₂	0	
1.0589	H	H	CH ₂ OCH ₂ CH ₂ OH	H	Cl	CH ₂ CH ₂	0	
1.0590	H	H	CH ₂ OCH ₂ CH ₂ OH	H	H	CH ₂ CH ₂	0	
1.0591	H	H	CH ₂ OCH ₂ CH ₂ Cl	H	F	CH ₂ CH ₂	0	
1.0592	H	H	CH ₂ OCH ₂ CH ₂ Cl	H	Cl	CH ₂ CH ₂	0	
1.0593	H	H	CH ₂ OCH ₂ CH ₂ Cl	H	H	CH ₂ CH ₂	0	
1.0594	H	H	CH ₂ OCH ₂ CF ₃	H	F	CH ₂ CH ₂	0	
1.0595	H	H	CH ₂ OCH ₂ CF ₃	H	Cl	CH ₂ CH ₂	0	
1.0596	H	H	CH ₂ OCH ₂ CF ₃	H	H	CH ₂ CH ₂	0	
1.0597	H	H	CH ₂ OCH ₂ CH=CH ₂	H	F	CH ₂ CH ₂	0	
1.0598	H	H	CH ₂ OCH ₂ CH=CH ₂	H	Cl	CH ₂ CH ₂	0	
1.0599	H	H	CH ₂ OCH ₂ CH=CH ₂	H	H	CH ₂ CH ₂	0	
1.0600	H	H	CH ₂ O(CO)CH ₃	H	F	CH ₂ CH ₂	0	
1.0601	H	H	CH ₂ O(CO)CH ₃	H	Cl	CH ₂ CH ₂	0	
1.0602	H	H	CH ₂ O(CO)CH ₃	H	H	CH ₂ CH ₂	0	
1.0603	H	H	CH ₂ OCH ₂ C≡CH	H	F	CH ₂ CH ₂	0	
1.0604	H	H	CH ₂ OCH ₂ C≡CH	H	Cl	CH ₂ CH ₂	0	
1.0605	H	H	CH ₂ OCH ₂ C≡CH	H	H	CH ₂ CH ₂	0	
1.0606	H	H	CH ₂ OCH ₂ C≡CCH ₃	H	F	CH ₂ CH ₂	0	
1.0607	H	H	CH ₂ OCH ₂ C≡CCH ₃	H	Cl	CH ₂ CH ₂	0	
1.0608	H	H	CH ₂ OCH ₂ C≡CCH ₃	H	H	CH ₂ CH ₂	0	
1.0609	H	H		H	F	CH ₂ CH ₂	0	
1.0610	H	H		H	Cl	CH ₂ CH ₂	0	

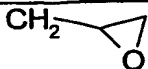
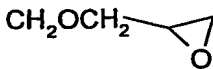
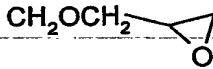
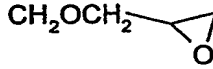
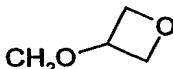
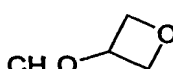
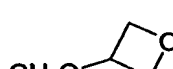

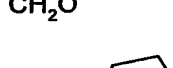
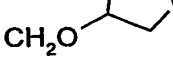
- 76 -

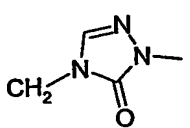
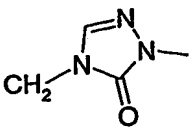
No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.0611	H	H		H	H	CH ₂ CH ₂	0	
1.0612	H	H		H	F	CH ₂ CH ₂	0	
1.0613	H	H		H	Cl	CH ₂ CH ₂	0	
1.0614	H	H		H	H	CH ₂ CH ₂	0	
1.0615	H	H		H	F	CH ₂ CH ₂	0	
1.0616	H	H		H	Cl	CH ₂ CH ₂	0	
1.0617	H	H		H	H	CH ₂ CH ₂	0	
1.0618	H	H		H	F	CH ₂ CH ₂	0	
1.0619	H	H		H	Cl	CH ₂ CH ₂	0	
1.0620	H	H		H	H	CH ₂ CH ₂	0	
1.0621	H	H		H	F	CH ₂ CH ₂	0	
1.0622	H	H		H	Cl	CH ₂ CH ₂	0	
1.0623	H	H		H	H	CH ₂ CH ₂	0	
1.0624	H	H		H	F	CH ₂ CH ₂	0	

- 77 -

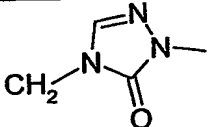
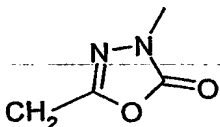
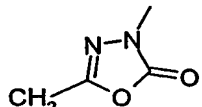
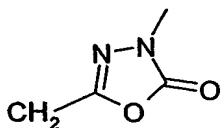
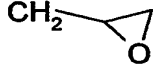
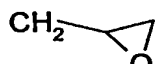
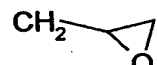
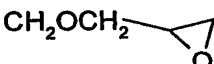
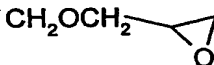
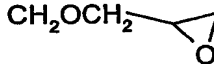
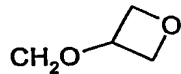
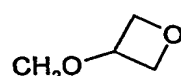
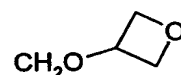
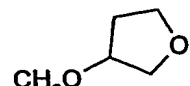
No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.0625	H	H		H	Cl	CH ₂ CH ₂	0	
1.0626	H	H		H	H	CH ₂ CH ₂	0	
1.0627	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	H	F	CH ₂ CH ₂	1	
1.0628	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	H	H	CH ₂ CH ₂	1	
1.0629	H	H	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	F	CH ₂ CH ₂	1	
1.0630	H	H	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	H	CH ₂ CH ₂	1	
1.0631	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	F	CH ₂ CH ₂	0	
1.0632	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	Cl	CH ₂ CH ₂	0	
1.0633	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	H	CH ₂ CH ₂	0	
1.0634	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	F	CH ₂ CH ₂	0	
1.0635	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	Cl	CH ₂ CH ₂	0	
1.0636	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	H	CH ₂ CH ₂	0	
1.0637	CH ₃	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	H	F	CH ₂ CH ₂	0	
1.0638	CH ₃	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	H	Cl	CH ₂ CH ₂	0	
1.0639	CH ₃	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	H	H	CH ₂ CH ₂	0	
1.0640	CH ₃	CH ₃	CH ₂ OCH ₂ Ph	H	F	CH ₂ CH ₂	0	
1.0641	CH ₃	CH ₃	CH ₂ OCH ₂ Ph	H	Cl	CH ₂ CH ₂	0	
1.0642	CH ₃	CH ₃	CH ₂ OCH ₂ Ph	H	H	CH ₂ CH ₂	0	
1.0643	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OH	H	F	CH ₂ CH ₂	0	
1.0644	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OH	H	Cl	CH ₂ CH ₂	0	
1.0645	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OH	H	H	CH ₂ CH ₂	0	
1.0646	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	H	F	CH ₂ CH ₂	0	
1.0647	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	H	Cl	CH ₂ CH ₂	0	
1.0648	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	H	H	CH ₂ CH ₂	0	
1.0649	CH ₃	CH ₃	CH ₂ OCH ₂ CF ₃	H	F	CH ₂ CH ₂	0	
1.0650	CH ₃	CH ₃	CH ₂ OCH ₂ CF ₃	H	Cl	CH ₂ CH ₂	0	
1.0651	CH ₃	CH ₃	CH ₂ OCH ₂ CF ₃	H	H	CH ₂ CH ₂	0	
1.0652	CH ₃	CH ₃	CH ₂ OCH ₂ CH=CH ₂	H	F	CH ₂ CH ₂	0	
1.0653	CH ₃	CH ₃	CH ₂ OCH ₂ CH=CH ₂	H	Cl	CH ₂ CH ₂	0	

No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.0654	CH ₃	CH ₃	CH ₂ OCH ₂ CH=CH ₂	H	H	CH ₂ CH ₂	0	
1.0655	CH ₃	CH ₃	CH ₂ O(CO)CH ₃	H	F	CH ₂ CH ₂	0	
1.0656	CH ₃	CH ₃	CH ₂ O(CO)CH ₃	H	Cl	CH ₂ CH ₂	0	
1.0657	CH ₃	CH ₃	CH ₂ O(CO)CH ₃	H	H	CH ₂ CH ₂	0	
1.0658	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CH	H	F	CH ₂ CH ₂	0	
1.0659	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CH	H	Cl	CH ₂ CH ₂	0	
1.0660	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CH	H	H	CH ₂ CH ₂	0	
1.0661	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	H	F	CH ₂ CH ₂	0	
1.0662	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	H	Cl	CH ₂ CH ₂	0	
1.0663	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	H	H	CH ₂ CH ₂	0	
1.0664	CH ₃	CH ₃		H	F	CH ₂ CH ₂	0	
1.0665	CH ₃	CH ₃		H	Cl	CH ₂ CH ₂	0	
1.0666	CH ₃	CH ₃		H	H	CH ₂ CH ₂	0	
1.0667	CH ₃	CH ₃		H	F	CH ₂ CH ₂	0	
1.0668	CH ₃	CH ₃		H	Cl	CH ₂ CH ₂	0	
1.0669	CH ₃	CH ₃		H	H	CH ₂ CH ₂	0	
1.0670	CH ₃	CH ₃		H	F	CH ₂ CH ₂	0	
1.0671	CH ₃	CH ₃		H	Cl	CH ₂ CH ₂	0	

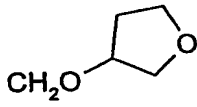
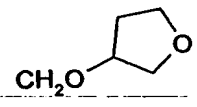
No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.0672	CH ₃	CH ₃		H	H	CH ₂ CH ₂	0	
1.0673	CH ₃	CH ₃		H	F	CH ₂ CH ₂	0	
1.0674	CH ₃	CH ₃		H	Cl	CH ₂ CH ₂	0	
1.0675	CH ₃	CH ₃		H	H	CH ₂ CH ₂	0	
1.0676	CH ₃	CH ₃		H	F	CH ₂ CH ₂	0	
1.0677	CH ₃	CH ₃		H	Cl	CH ₂ CH ₂	0	
1.0678	CH ₃	CH ₃		H	H	CH ₂ CH ₂	0	
1.0679	CH ₃	CH ₃		H	F	CH ₂ CH ₂	0	
1.0680	CH ₃	CH ₃		H	Cl	CH ₂ CH ₂	0	
1.0681	CH ₃	CH ₃		H	H	CH ₂ CH ₂	0	
1.0682	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	F	CH ₂ CH ₂	1	
1.0683	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	H	CH ₂ CH ₂	1	
1.0684	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	F	CH ₂ CH ₂	1	
1.0685	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	H	CH ₂ CH ₂	1	
1.0686	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	F	CH ₂ CH ₂	0	
1.0687	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	Cl	CH ₂ CH ₂	0	
1.0688	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	H	CH ₂ CH ₂	0	
1.0689	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	F	CH ₂ CH ₂	0	
1.0690	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	Cl	CH ₂ CH ₂	0	
1.0691	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	H	CH ₂ CH ₂	0	
1.0692	H	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	H	F	CH ₂ CH ₂	0	

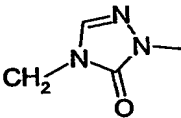
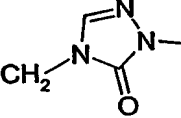
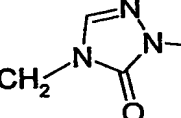
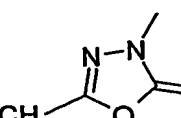
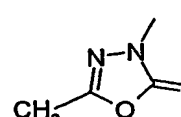
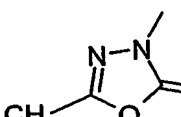
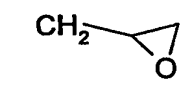
No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.0693	H	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	H	Cl	CH ₂ CH ₂	0	
1.0694	H	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	H	H	CH ₂ CH ₂	0	
1.0695	H	CH ₃	CH ₂ OCH ₂ Ph	H	F	CH ₂ CH ₂	0	
1.0696	H	CH ₃	CH ₂ OCH ₂ Ph	H	Cl	CH ₂ CH ₂	0	
1.0697	H	CH ₃	CH ₂ OCH ₂ Ph	H	H	CH ₂ CH ₂	0	
1.0698	H	CH ₃	CH ₂ OCH ₂ CH ₂ OH	H	F	CH ₂ CH ₂	0	
1.0699	H	CH ₃	CH ₂ OCH ₂ CH ₂ OH	H	Cl	CH ₂ CH ₂	0	
1.0700	H	CH ₃	CH ₂ OCH ₂ CH ₂ OH	H	H	CH ₂ CH ₂	0	
1.0701	H	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	H	F	CH ₂ CH ₂	0	
1.0702	H	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	H	Cl	CH ₂ CH ₂	0	
1.0703	H	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	H	H	CH ₂ CH ₂	0	
1.0704	H	CH ₃	CH ₂ OCH ₂ CF ₃	H	F	CH ₂ CH ₂	0	
1.0705	H	CH ₃	CH ₂ OCH ₂ CF ₃	H	Cl	CH ₂ CH ₂	0	
1.0706	H	CH ₃	CH ₂ OCH ₂ CF ₃	H	H	CH ₂ CH ₂	0	
1.0707	H	CH ₃	CH ₂ OCH ₂ CH=CH ₂	H	F	CH ₂ CH ₂	0	
1.0708	H	CH ₃	CH ₂ OCH ₂ CH=CH ₂	H	Cl	CH ₂ CH ₂	0	
1.0709	H	CH ₃	CH ₂ OCH ₂ CH=CH ₂	H	H	CH ₂ CH ₂	0	
1.0710	H	CH ₃	CH ₂ O(CO)CH ₃	H	F	CH ₂ CH ₂	0	
1.0711	H	CH ₃	CH ₂ O(CO)CH ₃	H	Cl	CH ₂ CH ₂	0	
1.0712	H	CH ₃	CH ₂ O(CO)CH ₃	H	H	CH ₂ CH ₂	0	
1.0713	H	CH ₃	CH ₂ OCH ₂ C≡CH	H	F	CH ₂ CH ₂	0	
1.0714	H	CH ₃	CH ₂ OCH ₂ C≡CH	H	Cl	CH ₂ CH ₂	0	
1.0715	H	CH ₃	CH ₂ OCH ₂ C≡CH	H	H	CH ₂ CH ₂	0	
1.0716	H	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	H	F	CH ₂ CH ₂	0	
1.0717	H	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	H	Cl	CH ₂ CH ₂	0	
1.0718	H	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	H	H	CH ₂ CH ₂	0	
1.0719	H	CH ₃		H	F	CH ₂ CH ₂	0	
1.0720	H	CH ₃		H	Cl	CH ₂ CH ₂	0	

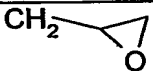
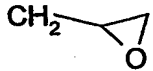
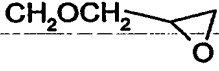
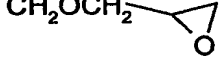
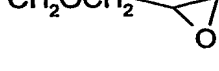
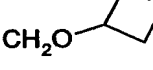
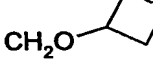
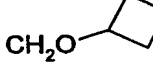
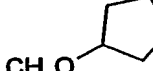

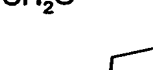
- 81 -

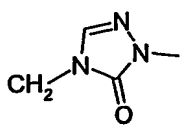
No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.0721	H	CH ₃		H	H	CH ₂ CH ₂	0	
1.0722	H	CH ₃		H	F	CH ₂ CH ₂	0	
1.0723	H	CH ₃		H	Cl	CH ₂ CH ₂	0	
1.0724	H	CH ₃		H	H	CH ₂ CH ₂	0	
1.0725	H	CH ₃		H	F	CH ₂ CH ₂	0	
1.0726	H	CH ₃		H	Cl	CH ₂ CH ₂	0	
1.0727	H	CH ₃		H	H	CH ₂ CH ₂	0	
1.0728	H	CH ₃		H	F	CH ₂ CH ₂	0	
1.0729	H	CH ₃		H	Cl	CH ₂ CH ₂	0	
1.0730	H	CH ₃		H	H	CH ₂ CH ₂	0	
1.0731	H	CH ₃		H	F	CH ₂ CH ₂	0	
1.0732	H	CH ₃		H	Cl	CH ₂ CH ₂	0	
1.0733	H	CH ₃		H	H	CH ₂ CH ₂	0	
1.0734	H	CH ₃		H	F	CH ₂ CH ₂	0	

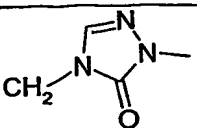
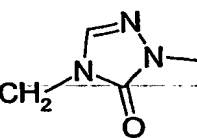
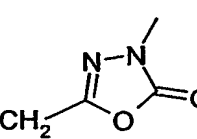
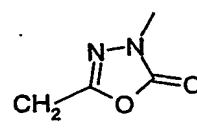
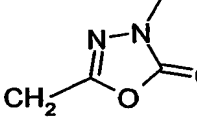
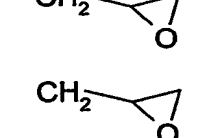
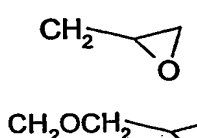
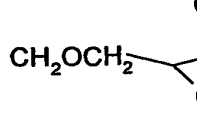
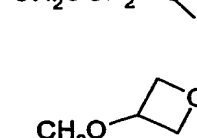
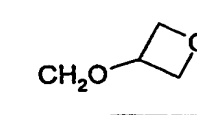


- 82 -

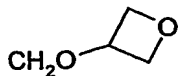
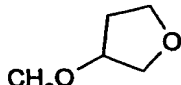
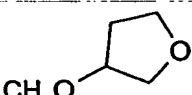
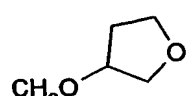
No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.0735	H	CH ₃		H	Cl	CH ₂ CH ₂	0	
1.0736	H	CH ₃		H	H	CH ₂ CH ₂	0	
1.0737	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	F	CH ₂ CH ₂	1	
1.0738	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	H	CH ₂ CH ₂	1	
1.0739	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	F	CH ₂ CH ₂	1	
1.0740	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	H	CH ₂ CH ₂	1	
1.0741	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	Cl	CH ₂ CH ₂	1	
1.0742	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	H	F	NC(O)C(CH ₃) ₃	0	
1.0743	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	H	Cl	NC(O)C(CH ₃) ₃	0	
1.0744	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	H	H	NC(O)C(CH ₃) ₃	0	
1.0745	H	H	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	F	NC(O)C(CH ₃) ₃	0	
1.0746	H	H	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	Cl	NC(O)C(CH ₃) ₃	0	
1.0747	H	H	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	H	NC(O)C(CH ₃) ₃	0	
1.0748	H	H	CH ₂ N(CH ₃)SO ₂ CH ₃	H	F	NC(O)C(CH ₃) ₃	0	
1.0749	H	H	CH ₂ N(CH ₃)SO ₂ CH ₃	H	Cl	NC(O)C(CH ₃) ₃	0	
1.0750	H	H	CH ₂ N(CH ₃)SO ₂ CH ₃	H	H	NC(O)C(CH ₃) ₃	0	
1.0751	H	H	CH ₂ OCH ₂ Ph	H	F	NC(O)C(CH ₃) ₃	0	
1.0752	H	H	CH ₂ OCH ₂ Ph	H	Cl	NC(O)C(CH ₃) ₃	0	
1.0753	H	H	CH ₂ OCH ₂ Ph	H	H	NC(O)C(CH ₃) ₃	0	
1.0754	H	H	CH ₂ OCH ₂ CH ₂ OH	H	F	NC(O)C(CH ₃) ₃	0	
1.0755	H	H	CH ₂ OCH ₂ CH ₂ OH	H	Cl	NC(O)C(CH ₃) ₃	0	
1.0756	H	H	CH ₂ OCH ₂ CH ₂ OH	H	H	NC(O)C(CH ₃) ₃	0	
1.0757	H	H	CH ₂ OCH ₂ CH ₂ Cl	H	F	NC(O)C(CH ₃) ₃	0	
1.0758	H	H	CH ₂ OCH ₂ CH ₂ Cl	H	Cl	NC(O)C(CH ₃) ₃	0	
1.0759	H	H	CH ₂ OCH ₂ CH ₂ Cl	H	H	NC(O)C(CH ₃) ₃	0	
1.0760	H	H	CH ₂ OCH ₂ CF ₃	H	F	NC(O)C(CH ₃) ₃	0	
1.0761	H	H	CH ₂ OCH ₂ CF ₃	H	Cl	NC(O)C(CH ₃) ₃	0	
1.0762	H	H	CH ₂ OCH ₂ CF ₃	H	H	NC(O)C(CH ₃) ₃	0	
1.0763	H	H	CH ₂ OCH ₂ CH=CH ₂	H	F	NC(O)C(CH ₃) ₃	0	

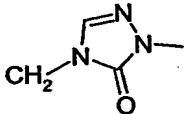
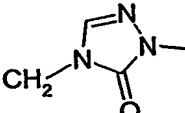
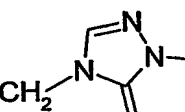
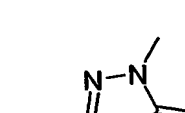
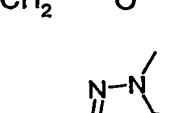
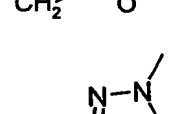
No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.0764	H	H	CH ₂ OCH ₂ CH=CH ₂	H	Cl	NC(O)C(CH ₃) ₃	0	
1.0765	H	H	CH ₂ OCH ₂ CH=CH ₂	H	H	NC(O)C(CH ₃) ₃	0	
1.0766	H	H	CH ₂ O(CO)CH ₃	H	F	NC(O)C(CH ₃) ₃	0	
1.0767	H	H	CH ₂ O(CO)CH ₃	H	Cl	NC(O)C(CH ₃) ₃	0	
1.0768	H	H	CH ₂ O(CO)CH ₃	H	H	NC(O)C(CH ₃) ₃	0	
1.0769	H	H	CH ₂ OCH ₂ C≡CH	H	F	NC(O)C(CH ₃) ₃	0	
1.0770	H	H	CH ₂ OCH ₂ C≡CH	H	Cl	NC(O)C(CH ₃) ₃	0	
1.0771	H	H	CH ₂ OCH ₂ C≡CH	H	H	NC(O)C(CH ₃) ₃	0	
1.0772	H	H	CH ₂ OCH ₂ C≡CCH ₃	H	F	NC(O)C(CH ₃) ₃	0	
1.0773	H	H	CH ₂ OCH ₂ C≡CCH ₃	H	Cl	NC(O)C(CH ₃) ₃	0	
1.0774	H	H	CH ₂ OCH ₂ C≡CCH ₃	H	H	NC(O)C(CH ₃) ₃	0	
1.0775	H	H		H	F	NC(O)C(CH ₃) ₃	0	
1.0776	H	H		H	Cl	NC(O)C(CH ₃) ₃	0	
1.0777	H	H		H	H	NC(O)C(CH ₃) ₃	0	
1.0778	H	H		H	F	NC(O)C(CH ₃) ₃	0	
1.0779	H	H		H	Cl	NC(O)C(CH ₃) ₃	0	
1.0780	H	H		H	H	NC(O)C(CH ₃) ₃	0	
1.0781	H	H		H	F	NC(O)C(CH ₃) ₃	0	

No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.0782	H	H		H	Cl	NC(O)C(CH ₃) ₃	0	
1.0783	H	H		H	H	NC(O)C(CH ₃) ₃	0	
1.0784	H	H		H	F	NC(O)C(CH ₃) ₃	0	
1.0785	H	H		H	Cl	NC(O)C(CH ₃) ₃	0	
1.0786	H	H		H	H	NC(O)C(CH ₃) ₃	0	
1.0787	H	H		H	F	NC(O)C(CH ₃) ₃	0	
1.0788	H	H		H	Cl	NC(O)C(CH ₃) ₃	0	
1.0789	H	H		H	H	NC(O)C(CH ₃) ₃	0	
1.0790	H	H		H	F	NC(O)C(CH ₃) ₃	0	
1.0791	H	H		H	Cl	NC(O)C(CH ₃) ₃	0	
1.0792	H	H		H	H	NC(O)C(CH ₃) ₃	0	
1.0793	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	H	F	NC(O)C(CH ₃) ₃	1	
1.0794	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	H	H	NC(O)C(CH ₃) ₃	1	
1.0795	H	H	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	F	NC(O)C(CH ₃) ₃	1	
1.0796	H	H	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	H	NC(O)C(CH ₃) ₃	1	
1.0797	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	F	NC(O)C(CH ₃) ₃	0	
1.0798	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	Cl	NC(O)C(CH ₃) ₃	0	
1.0799	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	H	NC(O)C(CH ₃) ₃	0	
1.0800	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	F	NC(O)C(CH ₃) ₃	0	
1.0801	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	Cl	NC(O)C(CH ₃) ₃	0	

No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.0802	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	H	NC(O)C(CH ₃) ₃	0	
1.0803	CH ₃	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	H	F	NC(O)C(CH ₃) ₃	0	
1.0804	CH ₃	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	H	Cl	NC(O)C(CH ₃) ₃	0	
1.0805	CH ₃	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	H	H	NC(O)C(CH ₃) ₃	0	
1.0806	CH ₃	CH ₃	CH ₂ OCH ₂ Ph	H	F	NC(O)C(CH ₃) ₃	0	
1.0807	CH ₃	CH ₃	CH ₂ OCH ₂ Ph	H	Cl	NC(O)C(CH ₃) ₃	0	
1.0808	CH ₃	CH ₃	CH ₂ OCH ₂ Ph	H	H	NC(O)C(CH ₃) ₃	0	
1.0809	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OH	H	F	NC(O)C(CH ₃) ₃	0	
1.0810	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OH	H	Cl	NC(O)C(CH ₃) ₃	0	
1.0811	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OH	H	H	NC(O)C(CH ₃) ₃	0	
1.0812	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	H	F	NC(O)C(CH ₃) ₃	0	
1.0813	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	H	Cl	NC(O)C(CH ₃) ₃	0	
1.0814	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	H	H	NC(O)C(CH ₃) ₃	0	
1.0815	CH ₃	CH ₃	CH ₂ OCH ₂ CF ₃	H	F	NC(O)C(CH ₃) ₃	0	
1.0816	CH ₃	CH ₃	CH ₂ OCH ₂ CF ₃	H	Cl	NC(O)C(CH ₃) ₃	0	
1.0817	CH ₃	CH ₃	CH ₂ OCH ₂ CF ₃	H	H	NC(O)C(CH ₃) ₃	0	
1.0818	CH ₃	CH ₃	CH ₂ OCH ₂ CH=CH ₂	H	F	NC(O)C(CH ₃) ₃	0	
1.0819	CH ₃	CH ₃	CH ₂ OCH ₂ CH=CH ₂	H	Cl	NC(O)C(CH ₃) ₃	0	
1.0820	CH ₃	CH ₃	CH ₂ OCH ₂ CH=CH ₂	H	H	NC(O)C(CH ₃) ₃	0	
1.0821	CH ₃	CH ₃	CH ₂ O(CO)CH ₃	H	F	NC(O)C(CH ₃) ₃	0	
1.0822	CH ₃	CH ₃	CH ₂ O(CO)CH ₃	H	Cl	NC(O)C(CH ₃) ₃	0	
1.0823	CH ₃	CH ₃	CH ₂ O(CO)CH ₃	H	H	NC(O)C(CH ₃) ₃	0	
1.0824	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CH	H	F	NC(O)C(CH ₃) ₃	0	
1.0825	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CH	H	Cl	NC(O)C(CH ₃) ₃	0	
1.0826	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CH	H	H	NC(O)C(CH ₃) ₃	0	
1.0827	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	H	F	NC(O)C(CH ₃) ₃	0	
1.0828	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	H	Cl	NC(O)C(CH ₃) ₃	0	
1.0829	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	H	H	NC(O)C(CH ₃) ₃	0	
1.0830	CH ₃	CH ₃		H	F	NC(O)C(CH ₃) ₃	0	

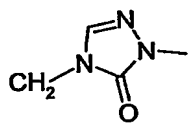
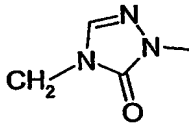
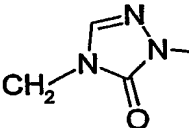
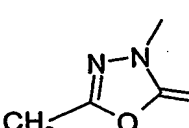
No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.0831	CH ₃	CH ₃		H	Cl	NC(O)C(CH ₃) ₃	0	
1.0832	CH ₃	CH ₃		H	H	NC(O)C(CH ₃) ₃	0	
1.0833	CH ₃	CH ₃		H	F	NC(O)C(CH ₃) ₃	0	
1.0834	CH ₃	CH ₃		H	Cl	NC(O)C(CH ₃) ₃	0	
1.0835	CH ₃	CH ₃		H	H	NC(O)C(CH ₃) ₃	0	
1.0836	CH ₃	CH ₃		H	F	NC(O)C(CH ₃) ₃	0	
1.0837	CH ₃	CH ₃		H	Cl	NC(O)C(CH ₃) ₃	0	
1.0838	CH ₃	CH ₃		H	H	NC(O)C(CH ₃) ₃	0	
1.0839	CH ₃	CH ₃		H	F	NC(O)C(CH ₃) ₃	0	
1.0840	CH ₃	CH ₃		H	Cl	NC(O)C(CH ₃) ₃	0	
1.0841	CH ₃	CH ₃		H	H	NC(O)C(CH ₃) ₃	0	
1.0842	CH ₃	CH ₃		H	F	NC(O)C(CH ₃) ₃	0	
1.0843	CH ₃	CH ₃		H	Cl	NC(O)C(CH ₃) ₃	0	

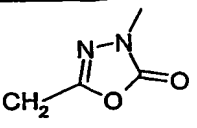
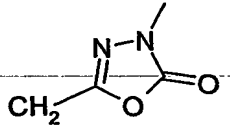
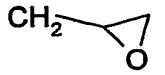
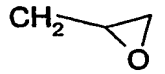
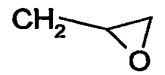
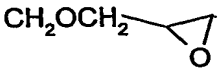
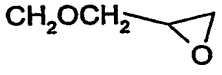
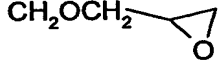
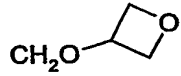
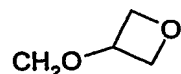
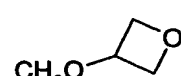

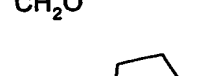
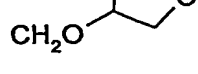
No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.0844	CH ₃	CH ₃		H	H	NC(O)C(CH ₃) ₃	0	
1.0845	CH ₃	CH ₃		H	F	NC(O)C(CH ₃) ₃	0	
1.0846	CH ₃	CH ₃		H	Cl	NC(O)C(CH ₃) ₃	0	
1.0847	CH ₃	CH ₃		H	H	NC(O)C(CH ₃) ₃	0	
1.0848	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	F	NC(O)C(CH ₃) ₃	1	
1.0849	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	H	NC(O)C(CH ₃) ₃	1	
1.0850	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	F	NC(O)C(CH ₃) ₃	1	
1.0851	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	H	NC(O)C(CH ₃) ₃	1	
1.0852	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	F	NC(O)C(CH ₃) ₃	0	
1.0853	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	Cl	NC(O)C(CH ₃) ₃	0	
1.0854	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	H	NC(O)C(CH ₃) ₃	0	
1.0855	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	F	NC(O)C(CH ₃) ₃	0	
1.0856	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	Cl	NC(O)C(CH ₃) ₃	0	
1.0857	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	H	NC(O)C(CH ₃) ₃	0	
1.0858	H	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	H	F	NC(O)C(CH ₃) ₃	0	
1.0859	H	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	H	Cl	NC(O)C(CH ₃) ₃	0	
1.0860	H	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	H	H	NC(O)C(CH ₃) ₃	0	
1.0861	H	CH ₃	CH ₂ OCH ₂ Ph	H	F	NC(O)C(CH ₃) ₃	0	
1.0862	H	CH ₃	CH ₂ OCH ₂ Ph	H	Cl	NC(O)C(CH ₃) ₃	0	
1.0863	H	CH ₃	CH ₂ OCH ₂ Ph	H	H	NC(O)C(CH ₃) ₃	0	
1.0864	H	CH ₃	CH ₂ OCH ₂ CH ₂ OH	H	F	NC(O)C(CH ₃) ₃	0	
1.0865	H	CH ₃	CH ₂ OCH ₂ CH ₂ OH	H	Cl	NC(O)C(CH ₃) ₃	0	
1.0866	H	CH ₃	CH ₂ OCH ₂ CH ₂ OH	H	H	NC(O)C(CH ₃) ₃	0	
1.0867	H	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	H	F	NC(O)C(CH ₃) ₃	0	
1.0868	H	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	H	Cl	NC(O)C(CH ₃) ₃	0	
1.0869	H	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	H	H	NC(O)C(CH ₃) ₃	0	
1.0870	H	CH ₃	CH ₂ OCH ₂ CF ₃	H	F	NC(O)C(CH ₃) ₃	0	

No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.0871	H	CH ₃	CH ₂ OCH ₂ CF ₃	H	Cl	NC(O)C(CH ₃) ₃	0	
1.0872	H	CH ₃	CH ₂ OCH ₂ CF ₃	H	H	NC(O)C(CH ₃) ₃	0	
1.0873	H	CH ₃	CH ₂ OCH ₂ CH=CH ₂	H	F	NC(O)C(CH ₃) ₃	0	
1.0874	H	CH ₃	CH ₂ OCH ₂ CH=CH ₂	H	Cl	NC(O)C(CH ₃) ₃	0	
1.0875	H	CH ₃	CH ₂ OCH ₂ CH=CH ₂	H	H	NC(O)C(CH ₃) ₃	0	
1.0876	H	CH ₃	CH ₂ O(CO)CH ₃	H	F	NC(O)C(CH ₃) ₃	0	
1.0877	H	CH ₃	CH ₂ O(CO)CH ₃	H	Cl	NC(O)C(CH ₃) ₃	0	
1.0878	H	CH ₃	CH ₂ O(CO)CH ₃	H	H	NC(O)C(CH ₃) ₃	0	
1.0879	H	CH ₃	CH ₂ OCH ₂ C≡CH	H	F	NC(O)C(CH ₃) ₃	0	
1.0880	H	CH ₃	CH ₂ OCH ₂ C≡CH	H	Cl	NC(O)C(CH ₃) ₃	0	
1.0881	H	CH ₃	CH ₂ OCH ₂ C≡CH	H	H	NC(O)C(CH ₃) ₃	0	
1.0882	H	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	H	F	NC(O)C(CH ₃) ₃	0	
1.0883	H	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	H	Cl	NC(O)C(CH ₃) ₃	0	
1.0884	H	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	H	H	NC(O)C(CH ₃) ₃	0	
1.0885	H	CH ₃		H	F	NC(O)C(CH ₃) ₃	0	
1.0886	H	CH ₃		H	Cl	NC(O)C(CH ₃) ₃	0	
1.0887	H	CH ₃		H	H	NC(O)C(CH ₃) ₃	0	
1.0888	H	CH ₃		H	F	NC(O)C(CH ₃) ₃	0	
1.0889	H	CH ₃		H	Cl	NC(O)C(CH ₃) ₃	0	
1.0890	H	CH ₃		H	H	NC(O)C(CH ₃) ₃	0	

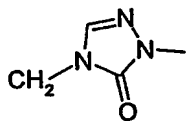
No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.0891	H	CH ₃		H	F	NC(O)C(CH ₃) ₃	0	
1.0892	H	CH ₃		H	Cl	NC(O)C(CH ₃) ₃	0	
1.0893	H	CH ₃		H	H	NC(O)C(CH ₃) ₃	0	
1.0894	H	CH ₃		H	F	NC(O)C(CH ₃) ₃	0	
1.0895	H	CH ₃		H	Cl	NC(O)C(CH ₃) ₃	0	
1.0896	H	CH ₃		H	H	NC(O)C(CH ₃) ₃	0	
1.0897	H	CH ₃		H	F	NC(O)C(CH ₃) ₃	0	
1.0898	H	CH ₃		H	Cl	NC(O)C(CH ₃) ₃	0	
1.0899	H	CH ₃		H	H	NC(O)C(CH ₃) ₃	0	
1.0900	H	CH ₃		H	F	NC(O)C(CH ₃) ₃	0	
1.0901	H	CH ₃		H	Cl	NC(O)C(CH ₃) ₃	0	
1.0902	H	CH ₃		H	H	NC(O)C(CH ₃) ₃	0	
1.0903	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	F	NC(O)C(CH ₃) ₃	1	
1.0904	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	H	NC(O)C(CH ₃) ₃	1	
1.0905	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	F	NC(O)C(CH ₃) ₃	1	
1.0906	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	H	NC(O)C(CH ₃) ₃	1	
1.0907	H	H	CH ₃	H	F	NSO ₂ N(CH ₃) ₂	0	
1.0908	H	H	CH ₃	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.0909	H	H	CH ₃	H	H	NSO ₂ N(CH ₃) ₂	0	

No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.0910	H	H	CH ₃	CH ₃	F	NSO ₂ N(CH ₃) ₂	0	
1.0911	H	H	CH ₃	CH ₃	Cl	NSO ₂ N(CH ₃) ₂	0	
1.0912	H	H	CH ₃	CH ₃	H	NSO ₂ N(CH ₃) ₂	0	
1.0913	H	H	CH ₂ CH ₃	H	F	NSO ₂ N(CH ₃) ₂	0	
1.0914	H	H	CH ₂ CH ₃	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.0915	H	H	CH ₂ CH ₃	H	H	NSO ₂ N(CH ₃) ₂	0	
1.0916	H	H	CH ₂ CH ₂ CH ₃	H	F	NSO ₂ N(CH ₃) ₂	0	
1.0917	H	H	CH ₂ CH ₂ CH ₃	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.0918	H	H	CH ₂ CH ₂ CH ₃	H	H	NSO ₂ N(CH ₃) ₂	0	
1.0919	H	H	CH ₂ OCH ₃	H	F	NSO ₂ N(CH ₃) ₂	0	
1.0920	H	H	CH ₂ OCH ₃	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.0921	H	H	CH ₂ OCH ₃	H	H	NSO ₂ N(CH ₃) ₂	0	
1.0922	H	H	CH ₂ OCH ₂ CH ₃	H	F	NSO ₂ N(CH ₃) ₂	0	
1.0923	H	H	CH ₂ OCH ₂ CH ₃	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.0924	H	H	CH ₂ OCH ₂ CH ₃	H	H	NSO ₂ N(CH ₃) ₂	0	
1.0925	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	H	F	NSO ₂ N(CH ₃) ₂	0	
1.0926	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.0927	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	H	H	NSO ₂ N(CH ₃) ₂	0	
1.0928	H	H	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	F	NSO ₂ N(CH ₃) ₂	0	
1.0929	H	H	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.0930	H	H	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	H	NSO ₂ N(CH ₃) ₂	0	
1.0931	H	H	CH ₂ CH ₂ OCH ₃	H	F	NSO ₂ N(CH ₃) ₂	0	
1.0932	H	H	CH ₂ CH ₂ OCH ₃	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.0933	H	H	CH ₂ CH ₂ OCH ₃	H	H	NSO ₂ N(CH ₃) ₂	0	
1.0934	H	H	CH ₂ OCH ₂ C≡CH	H	F	NSO ₂ N(CH ₃) ₂	0	
1.0935	H	H	CH ₂ OCH ₂ C≡CH	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.0936	H	H	CH ₂ OCH ₂ C≡CH	H	H	NSO ₂ N(CH ₃) ₂	0	
1.0937	H	H	CH ₂ OCH ₂ C≡CCH ₃	H	F	NSO ₂ N(CH ₃) ₂	0	
1.0938	H	H	CH ₂ OCH ₂ C≡CCH ₃	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.0939	H	H	CH ₂ OCH ₂ C≡CCH ₃	H	H	NSO ₂ N(CH ₃) ₂	0	
1.0940	H	H	CH ₂ CH ₂ CH ₂ OCH ₃	H	F	NSO ₂ N(CH ₃) ₂	0	
1.0941	H	H	CH ₂ CH ₂ CH ₂ OCH ₃	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.0942	H	H	CH ₂ CH ₂ CH ₂ OCH ₃	H	H	NSO ₂ N(CH ₃) ₂	0	

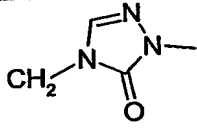
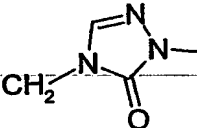
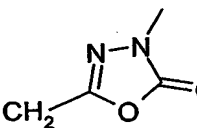
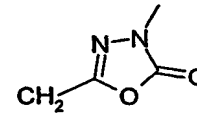
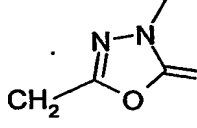
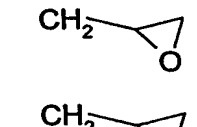
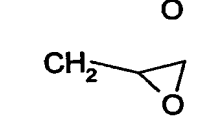
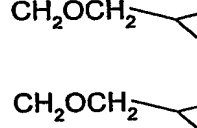
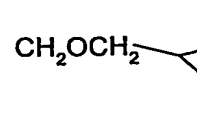
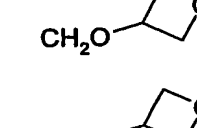
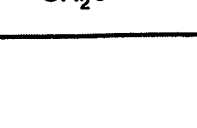

No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.0943	H	H	CH ₂ OCH ₂ OCH ₃	H	F	NSO ₂ N(CH ₃) ₂	0	
1.0944	H	H	CH ₂ OCH ₂ OCH ₃	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.0945	H	H	CH ₂ OCH ₂ OCH ₃	H	H	NSO ₂ N(CH ₃) ₂	0	
1.0946	H	H	CH ₂ N(CH ₃)SO ₂ CH ₃	H	F	NSO ₂ N(CH ₃) ₂	0	
1.0947	H	H	CH ₂ N(CH ₃)SO ₂ CH ₃	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.0948	H	H	CH ₂ N(CH ₃)SO ₂ CH ₃	H	H	NSO ₂ N(CH ₃) ₂	0	
1.0949	H	H	CF ₃	H	F	NSO ₂ N(CH ₃) ₂	0	
1.0950	H	H	CF ₃	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.0951	H	H	CF ₃	H	H	NSO ₂ N(CH ₃) ₂	0	
1.0952	H	H	CH ₂ OCH ₂ CF ₃	H	F	NSO ₂ N(CH ₃) ₂	0	
1.0953	H	H	CH ₂ OCH ₂ CF ₃	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.0954	H	H	CH ₂ OCH ₂ CF ₃	H	H	NSO ₂ N(CH ₃) ₂	0	
1.0955	H	H	CH ₂ OCH ₂ Ph	H	F	NSO ₂ N(CH ₃) ₂	0	
1.0956	H	H	CH ₂ OCH ₂ Ph	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.0957	H	H	CH ₂ OCH ₂ Ph	H	H	NSO ₂ N(CH ₃) ₂	0	
1.0958	H	H	CH ₂ OCH ₂ CH=CH ₂	H	F	NSO ₂ N(CH ₃) ₂	0	
1.0959	H	H	CH ₂ OCH ₂ CH=CH ₂	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.0960	H	H	CH ₂ OCH ₂ CH=CH ₂	H	H	NSO ₂ N(CH ₃) ₂	0	
1.0961	H	H		H	F	NSO ₂ N(CH ₃) ₂	0	
1.0962	H	H		H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.0963	H	H		H	H	NSO ₂ N(CH ₃) ₂	0	
1.0964	H	H		H	F	NSO ₂ N(CH ₃) ₂	0	

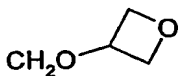
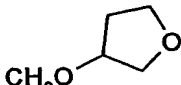
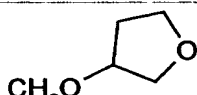
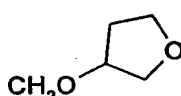
No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.0965	H	H		H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.0966	H	H		H	H	NSO ₂ N(CH ₃) ₂	0	
1.0967	H	H		H	F	NSO ₂ N(CH ₃) ₂	0	
1.0968	H	H		H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.0969	H	H		H	H	NSO ₂ N(CH ₃) ₂	0	
1.0970	H	H		H	F	NSO ₂ N(CH ₃) ₂	0	
1.0971	H	H		H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.0972	H	H		H	H	NSO ₂ N(CH ₃) ₂	0	
1.0973	H	H		H	F	NSO ₂ N(CH ₃) ₂	0	
1.0974	H	H		H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.0975	H	H		H	H	NSO ₂ N(CH ₃) ₂	0	
1.0976	H	H		H	F	NSO ₂ N(CH ₃) ₂	0	
1.0977	H	H		H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.0978	H	H		H	H	NSO ₂ N(CH ₃) ₂	0	
1.0979	H	H	CH ₃	H	F	NSO ₂ N(CH ₃) ₂	1	

No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.0980	H	H	CH ₂ OCH ₃	H	F	NSO ₂ N(CH ₃) ₂	1	
1.0981	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	H	F	NSO ₂ N(CH ₃) ₂	1	
1.0982	H	H	CH ₂ CH ₂ CH ₂ OCH ₃	H	F	NSO ₂ N(CH ₃) ₂	1	
1.0983	H	H	CH ₂ CH ₃	H	F	NSO ₂ N(CH ₃) ₂	1	
1.0984	H	H	CH ₃	H	H	NSO ₂ N(CH ₃) ₂	1	
1.0985	H	H	CH ₂ OCH ₃	H	H	NSO ₂ N(CH ₃) ₂	1	
1.0986	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	H	H	NSO ₂ N(CH ₃) ₂	1	
1.0987	H	H	CH ₂ CH ₂ CH ₂ OCH ₃	H	H	NSO ₂ N(CH ₃) ₂	1	
1.0988	H	H	CH ₂ CH ₃	H	H	NSO ₂ N(CH ₃) ₂	1	
1.0989	CH ₃	CH ₃	CH ₃	H	F	NSO ₂ N(CH ₃) ₂	0	
1.0990	CH ₃	CH ₃	CH ₃	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.0991	CH ₃	CH ₃	CH ₃	H	H	NSO ₂ N(CH ₃) ₂	0	
1.0992	CH ₃	CH ₃	CH ₃	CH ₃	F	NSO ₂ N(CH ₃) ₂	0	
1.0993	CH ₃	CH ₃	CH ₃	CH ₃	Cl	NSO ₂ N(CH ₃) ₂	0	
1.0994	CH ₃	CH ₃	CH ₃	CH ₃	H	NSO ₂ N(CH ₃) ₂	0	
1.0995	CH ₃	CH ₃	CH ₂ CH ₃	H	F	NSO ₂ N(CH ₃) ₂	0	
1.0996	CH ₃	CH ₃	CH ₂ CH ₃	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.0997	CH ₃	CH ₃	CH ₂ CH ₃	H	H	NSO ₂ N(CH ₃) ₂	0	
1.0998	CH ₃	CH ₃	CH ₂ CH ₂ CH ₃	H	F	NSO ₂ N(CH ₃) ₂	0	
1.0999	CH ₃	CH ₃	CH ₂ CH ₂ CH ₃	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.1000	CH ₃	CH ₃	CH ₂ CH ₂ CH ₃	H	H	NSO ₂ N(CH ₃) ₂	0	
1.1001	CH ₃	CH ₃	CH ₂ OCH ₃	H	F	NSO ₂ N(CH ₃) ₂	0	
1.1002	CH ₃	CH ₃	CH ₂ OCH ₃	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.1003	CH ₃	CH ₃	CH ₂ OCH ₃	H	H	NSO ₂ N(CH ₃) ₂	0	
1.1004	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₃	H	F	NSO ₂ N(CH ₃) ₂	0	
1.1005	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₃	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.1006	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₃	H	H	NSO ₂ N(CH ₃) ₂	0	
1.1007	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	F	NSO ₂ N(CH ₃) ₂	0	
1.1008	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.1009	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	H	NSO ₂ N(CH ₃) ₂	0	
1.1010	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	F	NSO ₂ N(CH ₃) ₂	0	
1.1011	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.1012	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	H	NSO ₂ N(CH ₃) ₂	0	

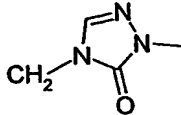
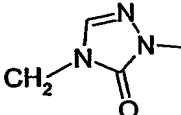
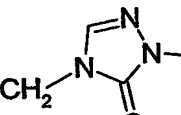
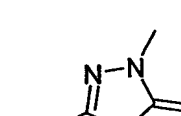
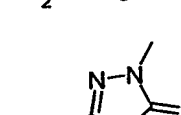
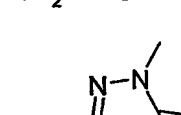
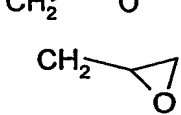
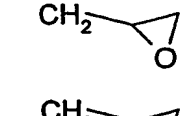

No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.1013	CH ₃	CH ₃	CH ₂ CH ₂ OCH ₃	H	F	NSO ₂ N(CH ₃) ₂	0	
1.1014	CH ₃	CH ₃	CH ₂ CH ₂ OCH ₃	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.1015	CH ₃	CH ₃	CH ₂ CH ₂ OCH ₃	H	H	NSO ₂ N(CH ₃) ₂	0	
1.1016	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CH	H	F	NSO ₂ N(CH ₃) ₂	0	
1.1017	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CH	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.1018	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CH	H	H	NSO ₂ N(CH ₃) ₂	0	
1.1019	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	H	F	NSO ₂ N(CH ₃) ₂	0	
1.1020	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.1021	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	H	H	NSO ₂ N(CH ₃) ₂	0	
1.1022	CH ₃	CH ₃	CH ₂ CH ₂ CH ₂ OCH ₃	H	F	NSO ₂ N(CH ₃) ₂	0	
1.1023	CH ₃	CH ₃	CH ₂ CH ₂ CH ₂ OCH ₃	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.1024	CH ₃	CH ₃	CH ₂ CH ₂ CH ₂ OCH ₃	H	H	NSO ₂ N(CH ₃) ₂	0	
1.1025	CH ₃	CH ₃	CH ₂ OCH ₂ OCH ₃	H	F	NSO ₂ N(CH ₃) ₂	0	
1.1026	CH ₃	CH ₃	CH ₂ OCH ₂ OCH ₃	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.1027	CH ₃	CH ₃	CH ₂ OCH ₂ OCH ₃	H	H	NSO ₂ N(CH ₃) ₂	0	
1.1028	CH ₃	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	H	F	NSO ₂ N(CH ₃) ₂	0	
1.1029	CH ₃	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.1030	CH ₃	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	H	H	NSO ₂ N(CH ₃) ₂	0	
1.1031	CH ₃	CH ₃	CF ₃	H	F	NSO ₂ N(CH ₃) ₂	0	
1.1032	CH ₃	CH ₃	CF ₃	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.1033	CH ₃	CH ₃	CF ₃	H	H	NSO ₂ N(CH ₃) ₂	0	
1.1034	CH ₃	CH ₃	CH ₂ OCH ₂ CF ₃	H	F	NSO ₂ N(CH ₃) ₂	0	
1.1035	CH ₃	CH ₃	CH ₂ OCH ₂ CF ₃	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.1036	CH ₃	CH ₃	CH ₂ OCH ₂ CF ₃	H	H	NSO ₂ N(CH ₃) ₂	0	
1.1037	CH ₃	CH ₃	CH ₂ OCH ₂ Ph	H	F	NSO ₂ N(CH ₃) ₂	0	
1.1038	CH ₃	CH ₃	CH ₂ OCH ₂ Ph	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.1039	CH ₃	CH ₃	CH ₂ OCH ₂ Ph	H	H	NSO ₂ N(CH ₃) ₂	0	
1.1040	CH ₃	CH ₃	CH ₂ OCH ₂ CH=CH ₂	H	F	NSO ₂ N(CH ₃) ₂	0	
1.1041	CH ₃	CH ₃	CH ₂ OCH ₂ CH=CH ₂	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.1042	CH ₃	CH ₃	CH ₂ OCH ₂ CH=CH ₂	H	H	NSO ₂ N(CH ₃) ₂	0	
1.1043	CH ₃	CH ₃		H	F	NSO ₂ N(CH ₃) ₂	0	




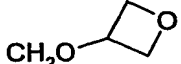
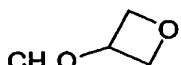
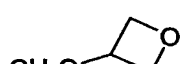

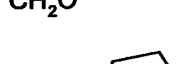
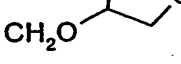

- 95 -

No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.1044	CH ₃	CH ₃		H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.1045	CH ₃	CH ₃		H	H	NSO ₂ N(CH ₃) ₂	0	
1.1046	CH ₃	CH ₃		H	F	NSO ₂ N(CH ₃) ₂	0	
1.1047	CH ₃	CH ₃		H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.1048	CH ₃	CH ₃		H	H	NSO ₂ N(CH ₃) ₂	0	
1.1049	CH ₃	CH ₃		H	F	NSO ₂ N(CH ₃) ₂	0	
1.1050	CH ₃	CH ₃		H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.1051	CH ₃	CH ₃		H	H	NSO ₂ N(CH ₃) ₂	0	
1.1052	CH ₃	CH ₃		H	F	NSO ₂ N(CH ₃) ₂	0	
1.1053	CH ₃	CH ₃		H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.1054	CH ₃	CH ₃		H	H	NSO ₂ N(CH ₃) ₂	0	
1.1055	CH ₃	CH ₃		H	F	NSO ₂ N(CH ₃) ₂	0	
1.1056	CH ₃	CH ₃		H	Cl	NSO ₂ N(CH ₃) ₂	0	

No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.1057	CH ₃	CH ₃		H	H	NSO ₂ N(CH ₃) ₂	0	
1.1058	CH ₃	CH ₃		H	F	NSO ₂ N(CH ₃) ₂	0	
1.1059	CH ₃	CH ₃		H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.1060	CH ₃	CH ₃		H	H	NSO ₂ N(CH ₃) ₂	0	
1.1061	CH ₃	CH ₃	CH ₃	H	F	NSO ₂ N(CH ₃) ₂	1	
1.1062	CH ₃	CH ₃	CH ₂ OCH ₃	H	F	NSO ₂ N(CH ₃) ₂	1	
1.1063	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	F	NSO ₂ N(CH ₃) ₂	1	
1.1064	CH ₃	CH ₃	CH ₂ CH ₂ CH ₂ OCH ₃	H	F	NSO ₂ N(CH ₃) ₂	1	
1.1065	CH ₃	CH ₃	CH ₂ CH ₃	H	F	NSO ₂ N(CH ₃) ₂	1	
1.1066	CH ₃	CH ₃	CH ₃	H	H	NSO ₂ N(CH ₃) ₂	1	
1.1067	CH ₃	CH ₃	CH ₂ OCH ₃	H	H	NSO ₂ N(CH ₃) ₂	1	
1.1068	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	H	NSO ₂ N(CH ₃) ₂	1	
1.1069	CH ₃	CH ₃	CH ₂ CH ₂ CH ₂ OCH ₃	H	H	NSO ₂ N(CH ₃) ₂	1	
1.1070	CH ₃	CH ₃	CH ₂ CH ₃	H	H	NSO ₂ N(CH ₃) ₂	1	
1.1071	H	CH ₃	CH ₃	H	F	NSO ₂ N(CH ₃) ₂	0	
1.1072	H	CH ₃	CH ₃	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.1073	H	CH ₃	CH ₃	H	H	NSO ₂ N(CH ₃) ₂	0	
1.1074	H	CH ₃	CH ₃	CH ₃	F	NSO ₂ N(CH ₃) ₂	0	
1.1075	H	CH ₃	CH ₃	CH ₃	Cl	NSO ₂ N(CH ₃) ₂	0	
1.1076	H	CH ₃	CH ₃	CH ₃	H	NSO ₂ N(CH ₃) ₂	0	
1.1077	H	CH ₃	CH ₂ CH ₃	H	F	NSO ₂ N(CH ₃) ₂	0	
1.1078	H	CH ₃	CH ₂ CH ₃	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.1079	H	CH ₃	CH ₂ CH ₃	H	H	NSO ₂ N(CH ₃) ₂	0	
1.1080	H	CH ₃	CH ₂ CH ₂ CH ₃	H	F	NSO ₂ N(CH ₃) ₂	0	
1.1081	H	CH ₃	CH ₂ CH ₂ CH ₃	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.1082	H	CH ₃	CH ₂ CH ₂ CH ₃	H	H	NSO ₂ N(CH ₃) ₂	0	
1.1083	H	CH ₃	CH ₂ OCH ₃	H	F	NSO ₂ N(CH ₃) ₂	0	

No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.1084	H	CH ₃	CH ₂ OCH ₃	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.1085	H	CH ₃	CH ₂ OCH ₃	H	H	NSO ₂ N(CH ₃) ₂	0	
1.1086	H	CH ₃	CH ₂ OCH ₂ CH ₃	H	F	NSO ₂ N(CH ₃) ₂	0	
1.1087	H	CH ₃	CH ₂ OCH ₂ CH ₃	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.1088	H	CH ₃	CH ₂ OCH ₂ CH ₃	H	H	NSO ₂ N(CH ₃) ₂	0	
1.1089	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	F	NSO ₂ N(CH ₃) ₂	0	
1.1090	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.1091	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	H	NSO ₂ N(CH ₃) ₂	0	
1.1092	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	F	NSO ₂ N(CH ₃) ₂	0	
1.1093	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.1094	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	H	NSO ₂ N(CH ₃) ₂	0	
1.1095	H	CH ₃	CH ₂ CH ₂ OCH ₃	H	F	NSO ₂ N(CH ₃) ₂	0	
1.1096	H	CH ₃	CH ₂ CH ₂ OCH ₃	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.1097	H	CH ₃	CH ₂ CH ₂ OCH ₃	H	H	NSO ₂ N(CH ₃) ₂	0	
1.1098	H	CH ₃	CH ₂ OCH ₂ C≡CH	H	F	NSO ₂ N(CH ₃) ₂	0	
1.1099	H	CH ₃	CH ₂ OCH ₂ C≡CH	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.1100	H	CH ₃	CH ₂ OCH ₂ C≡CH	H	H	NSO ₂ N(CH ₃) ₂	0	
1.1101	H	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	H	F	NSO ₂ N(CH ₃) ₂	0	
1.1102	H	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.1103	H	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	H	H	NSO ₂ N(CH ₃) ₂	0	
1.1104	H	CH ₃	CH ₂ CH ₂ CH ₂ OCH ₃	H	F	NSO ₂ N(CH ₃) ₂	0	
1.1105	H	CH ₃	CH ₂ CH ₂ CH ₂ OCH ₃	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.1106	H	CH ₃	CH ₂ CH ₂ CH ₂ OCH ₃	H	H	NSO ₂ N(CH ₃) ₂	0	
1.1107	H	CH ₃	CH ₂ OCH ₂ OCH ₃	H	F	NSO ₂ N(CH ₃) ₂	0	
1.1108	H	CH ₃	CH ₂ OCH ₂ OCH ₃	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.1109	H	CH ₃	CH ₂ OCH ₂ OCH ₃	H	H	NSO ₂ N(CH ₃) ₂	0	
1.1110	H	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	H	F	NSO ₂ N(CH ₃) ₂	0	
1.1111	H	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.1112	H	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	H	H	NSO ₂ N(CH ₃) ₂	0	
1.1113	H	CH ₃	CF ₃	H	F	NSO ₂ N(CH ₃) ₂	0	
1.1114	H	CH ₃	CF ₃	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.1115	H	CH ₃	CF ₃	H	H	NSO ₂ N(CH ₃) ₂	0	
1.1116	H	CH ₃	CH ₂ OCH ₂ CF ₃	H	F	NSO ₂ N(CH ₃) ₂	0	

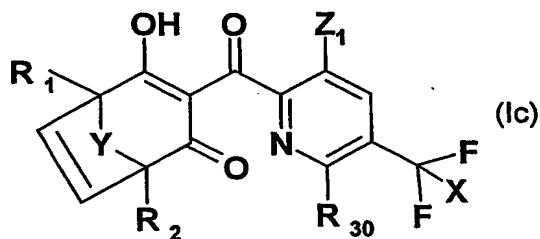
No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.1117	H	CH ₃	CH ₂ OCH ₂ CF ₃	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.1118	H	CH ₃	CH ₂ OCH ₂ CF ₃	H	H	NSO ₂ N(CH ₃) ₂	0	
1.1119	H	CH ₃	CH ₂ OCH ₂ Ph	H	F	NSO ₂ N(CH ₃) ₂	0	
1.1120	H	CH ₃	CH ₂ OCH ₂ Ph	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.1121	H	CH ₃	CH ₂ OCH ₂ Ph	H	H	NSO ₂ N(CH ₃) ₂	0	
1.1122	H	CH ₃	CH ₂ OCH ₂ CH=CH ₂	H	F	NSO ₂ N(CH ₃) ₂	0	
1.1123	H	CH ₃	CH ₂ OCH ₂ CH=CH ₂	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.1124	H	CH ₃	CH ₂ OCH ₂ CH=CH ₂	H	H	NSO ₂ N(CH ₃) ₂	0	
1.1125	H	CH ₃		H	F	NSO ₂ N(CH ₃) ₂	0	
1.1126	H	CH ₃		H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.1127	H	CH ₃		H	H	NSO ₂ N(CH ₃) ₂	0	
1.1128	H	CH ₃		H	F	NSO ₂ N(CH ₃) ₂	0	
1.1129	H	CH ₃		H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.1130	H	CH ₃		H	H	NSO ₂ N(CH ₃) ₂	0	
1.1131	H	CH ₃		H	F	NSO ₂ N(CH ₃) ₂	0	
1.1132	H	CH ₃		H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.1133	H	CH ₃		H	H	NSO ₂ N(CH ₃) ₂	0	

No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.1134	H	CH ₃	CH ₂ OCH ₂ 	H	F	NSO ₂ N(CH ₃) ₂	0	
1.1135	H	CH ₃	CH ₂ OCH ₂ 	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.1136	H	CH ₃	CH ₂ OCH ₂ 	H	H	NSO ₂ N(CH ₃) ₂	0	
1.1137	H	CH ₃	CH ₂ O 	H	F	NSO ₂ N(CH ₃) ₂	0	
1.1138	H	CH ₃	CH ₂ O 	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.1139	H	CH ₃	CH ₂ O 	H	H	NSO ₂ N(CH ₃) ₂	0	
1.1140	H	CH ₃	CH ₂ O 	H	F	NSO ₂ N(CH ₃) ₂	0	
1.1141	H	CH ₃	CH ₂ O 	H	Cl	NSO ₂ N(CH ₃) ₂	0	
1.1142	H	CH ₃	CH ₂ O 	H	H	NSO ₂ N(CH ₃) ₂	0	
1.1143	H	CH ₃	CH ₃	H	F	NSO ₂ N(CH ₃) ₂	1	
1.1144	H	CH ₃	CH ₂ OCH ₃	H	F	NSO ₂ N(CH ₃) ₂	1	
1.1145	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	F	NSO ₂ N(CH ₃) ₂	1	
1.1146	H	CH ₃	CH ₂ CH ₂ CH ₂ OCH ₃	H	F	NSO ₂ N(CH ₃) ₂	1	
1.1147	H	CH ₃	CH ₂ CH ₃	H	F	NSO ₂ N(CH ₃) ₂	1	
1.1148	H	CH ₃	CH ₃	H	H	NSO ₂ N(CH ₃) ₂	1	
1.1149	H	CH ₃	CH ₂ OCH ₃	H	H	NSO ₂ N(CH ₃) ₂	1	
1.1150	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	H	NSO ₂ N(CH ₃) ₂	1	
1.1151	H	CH ₃	CH ₂ CH ₂ CH ₂ OCH ₃	H	H	NSO ₂ N(CH ₃) ₂	1	
1.1152	H	CH ₃	CH ₂ CH ₃	H	H	NSO ₂ N(CH ₃) ₂	1	
1.1153	H	H	CH ₃	H	F		0	¹ H NMR (300 MHz; CDCl ₃) δ 16.58 (s, 1H); 7.55 (m, 2H); 6.48 (m, 1H); 6.40 (m, 1H); 2.94

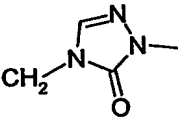
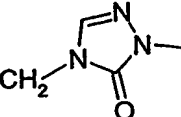
- 100 -

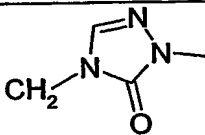
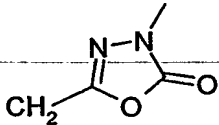
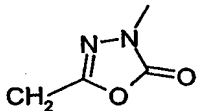
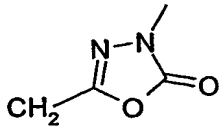
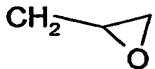
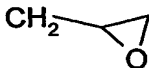
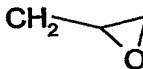
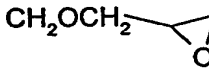
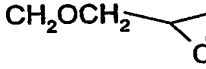
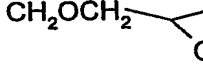
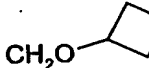
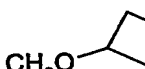
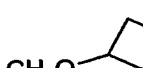

No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Physical data
1.1154	H	H	CH ₃	H	F	C(=C(CH ₃) ₂)	0	(m, 1H); 2.72 (m, 1H); 2.50 (s, 3H); 0.90-0.65 (m, 4H). ¹ H NMR (300 MHz; CDCl ₃) δ 16.25 (s, 1H); 7.56 (m, 2H); 6.52 (m, 1H); 6.45 (m, 1H); 4.20 (m, 1H); 3.98 (m, 1H); 2.45 (s, 3H); 1.80 (s, 3H); 1.71 (s, 3H).
1.1155	H	H	CH ₃	H	H	CH ₂ CH(COOCH ₃)	0	R ₇ = Br; ¹ H NMR (300 MHz; CDCl ₃) i.a. δ 7.44 (d, 2H); 6.54 (t, 1H); 6.53 + 6.42 (2d, 1H); 3.71 + 3.68 (2s, 3H); 2.41 + 2.40 (2s, 3H); tautomeric mixture.
1.1156	H	H	CH ₃	H	H	CH ₂ CH(COOCH ₃)	0	R ₇ =H; NEt ₃ salt (Example P14)

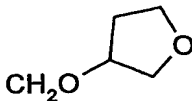
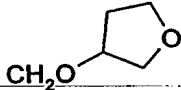
Table 2: Compounds of formula Ic:

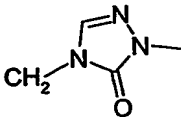
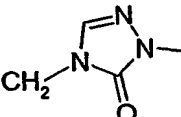
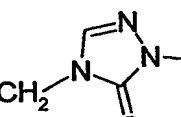
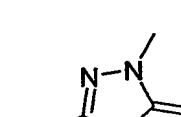
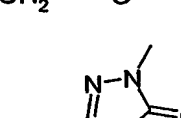
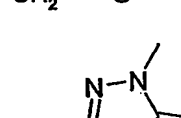
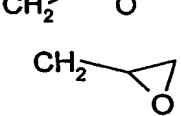
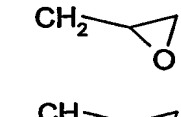
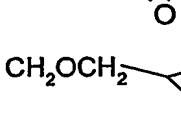
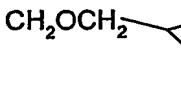










No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	Physical data
2.0000	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	H	F	CH ₂	
2.0001	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	H	Cl	CH ₂	
2.0002	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	H	H	CH ₂	
2.0003	H	H	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	F	CH ₂	
2.0004	H	H	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	Cl	CH ₂	
2.0005	H	H	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	H	CH ₂	

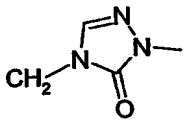
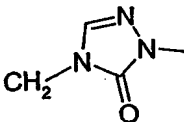
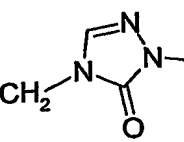
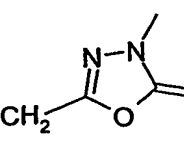
No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	Physical data
2.0006	H	H	CH ₂ N(CH ₃)SO ₂ CH ₃	H	F	CH ₂	
2.0007	H	H	CH ₂ N(CH ₃)SO ₂ CH ₃	H	Cl	CH ₂	
2.0008	H	H	CH ₂ N(CH ₃)SO ₂ CH ₃	H	H	CH ₂	
2.0009	H	H	CH ₂ OCH ₂ Ph	H	F	CH ₂	
2.0010	H	H	CH ₂ OCH ₂ Ph	H	Cl	CH ₂	
2.0011	H	H	CH ₂ OCH ₂ Ph	H	H	CH ₂	
2.0012	H	H	CH ₂ OCH ₂ CH ₂ OH	H	F	CH ₂	
2.0013	H	H	CH ₂ OCH ₂ CH ₂ OH	H	Cl	CH ₂	
2.0014	H	H	CH ₂ OCH ₂ CH ₂ OH	H	H	CH ₂	
2.0015	H	H	CH ₂ OCH ₂ CH ₂ Cl	H	F	CH ₂	
2.0016	H	H	CH ₂ OCH ₂ CH ₂ Cl	H	Cl	CH ₂	
2.0017	H	H	CH ₂ OCH ₂ CH ₂ Cl	H	H	CH ₂	
2.0018	H	H	CH ₂ OCH ₂ CF ₃	H	F	CH ₂	
2.0019	H	H	CH ₂ OCH ₂ CF ₃	H	Cl	CH ₂	
2.0020	H	H	CH ₂ OCH ₂ CF ₃	H	H	CH ₂	
2.0021	H	H	CH ₂ OCH ₂ CH=CH ₂	H	F	CH ₂	
2.0022	H	H	CH ₂ OCH ₂ CH=CH ₂	H	Cl	CH ₂	
2.0023	H	H	CH ₂ OCH ₂ CH=CH ₂	H	H	CH ₂	
2.0024	H	H	CH ₂ O(CO)CH ₃	H	F	CH ₂	
2.0025	H	H	CH ₂ O(CO)CH ₃	H	Cl	CH ₂	
2.0026	H	H	CH ₂ O(CO)CH ₃	H	H	CH ₂	
2.0027	H	H	CH ₂ OCH ₂ C≡CH	H	F	CH ₂	
2.0028	H	H	CH ₂ OCH ₂ C≡CH	H	Cl	CH ₂	
2.0029	H	H	CH ₂ OCH ₂ C≡CH	H	H	CH ₂	
2.0030	H	H	CH ₂ OCH ₂ C≡CCH ₃	H	F	CH ₂	
2.0031	H	H	CH ₂ OCH ₂ C≡CCH ₃	H	Cl	CH ₂	
2.0032	H	H	CH ₂ OCH ₂ C≡CCH ₃	H	H	CH ₂	
2.0033	H	H		H	F	CH ₂	
2.0034	H	H		H	Cl	CH ₂	

No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	Physical data
2.0035	H	H		H	H	CH ₂	
2.0036	H	H		H	F	CH ₂	
2.0037	H	H		H	Cl	CH ₂	
2.0038	H	H		H	H	CH ₂	
2.0039	H	H		H	F	CH ₂	
2.0040	H	H		H	Cl	CH ₂	
2.0041	H	H		H	H	CH ₂	
2.0042	H	H		H	F	CH ₂	
2.0043	H	H		H	Cl	CH ₂	
2.0044	H	H		H	H	CH ₂	
2.0045	H	H		H	F	CH ₂	
2.0046	H	H		H	Cl	CH ₂	
2.0047	H	H		H	H	CH ₂	
2.0048	H	H		H	F	CH ₂	

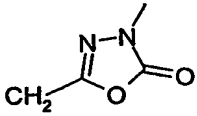
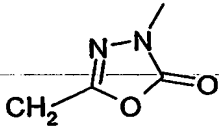
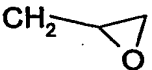
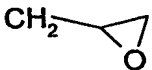
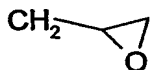
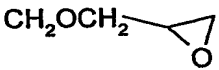
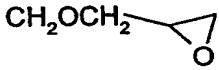
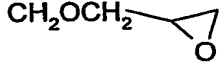
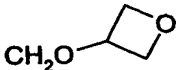
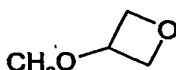
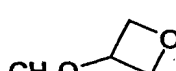

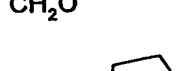
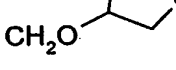
No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	Physical data
2.0049	H	H		H	Cl	CH ₂	
2.0050	H	H		H	H	CH ₂	
2.0051	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	F	CH ₂	
2.0052	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	Cl	CH ₂	
2.0053	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	H	CH ₂	
2.0054	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	F	CH ₂	
2.0055	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	Cl	CH ₂	
2.0056	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	H	CH ₂	
2.0057	CH ₃	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	H	F	CH ₂	
2.0058	CH ₃	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	H	Cl	CH ₂	
2.0059	CH ₃	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	H	H	CH ₂	
2.0060	CH ₃	CH ₃	CH ₂ OCH ₂ Ph	H	F	CH ₂	
2.0061	CH ₃	CH ₃	CH ₂ OCH ₂ Ph	H	Cl	CH ₂	
2.0062	CH ₃	CH ₃	CH ₂ OCH ₂ Ph	H	H	CH ₂	
2.0063	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OH	H	F	CH ₂	
2.0064	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OH	H	Cl	CH ₂	
2.0065	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OH	H	H	CH ₂	
2.0066	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	H	F	CH ₂	
2.0067	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	H	Cl	CH ₂	
2.0068	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	H	H	CH ₂	
2.0069	CH ₃	CH ₃	CH ₂ OCH ₂ CF ₃	H	F	CH ₂	
2.0070	CH ₃	CH ₃	CH ₂ OCH ₂ CF ₃	H	Cl	CH ₂	
2.0071	CH ₃	CH ₃	CH ₂ OCH ₂ CF ₃	H	H	CH ₂	
2.0072	CH ₃	CH ₃	CH ₂ OCH ₂ CH=CH ₂	H	F	CH ₂	
2.0073	CH ₃	CH ₃	CH ₂ OCH ₂ CH=CH ₂	H	Cl	CH ₂	
2.0074	CH ₃	CH ₃	CH ₂ OCH ₂ CH=CH ₂	H	H	CH ₂	
2.0075	CH ₃	CH ₃	CH ₂ O(CO)CH ₃	H	F	CH ₂	
2.0076	CH ₃	CH ₃	CH ₂ O(CO)CH ₃	H	Cl	CH ₂	
2.0077	CH ₃	CH ₃	CH ₂ O(CO)CH ₃	H	H	CH ₂	

No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	Physical data
2.0078	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CH	H	F	CH ₂	
2.0079	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CH	H	Cl	CH ₂	
2.0080	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CH	H	H	CH ₂	
2.0081	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	H	F	CH ₂	
2.0082	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	H	Cl	CH ₂	
2.0083	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	H	H	CH ₂	
2.0084	CH ₃	CH ₃		H	F	CH ₂	
2.0085	CH ₃	CH ₃		H	Cl	CH ₂	
2.0086	CH ₃	CH ₃		H	H	CH ₂	
2.0087	CH ₃	CH ₃		H	F	CH ₂	
2.0088	CH ₃	CH ₃		H	Cl	CH ₂	
2.0089	CH ₃	CH ₃		H	H	CH ₂	
2.0090	CH ₃	CH ₃		H	F	CH ₂	
2.0091	CH ₃	CH ₃		H	Cl	CH ₂	
2.0092	CH ₃	CH ₃		H	H	CH ₂	
2.0093	CH ₃	CH ₃	CH ₂ OCH ₂ 	H	F	CH ₂	

No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	Physical data
2.0094	CH ₃	CH ₃	CH ₂ OCH ₂ 	H	Cl	CH ₂	
2.0095	CH ₃	CH ₃	CH ₂ OCH ₂ 	H	H	CH ₂	
2.0096	CH ₃	CH ₃	CH ₂ O 	H	F	CH ₂	
2.0097	CH ₃	CH ₃	CH ₂ O 	H	Cl	CH ₂	
2.0098	CH ₃	CH ₃	CH ₂ O 	H	H	CH ₂	
2.0099	CH ₃	CH ₃	CH ₂ O 	H	F	CH ₂	
2.0100	CH ₃	CH ₃	CH ₂ O 	H	Cl	CH ₂	
2.0101	CH ₃	CH ₃	CH ₂ O 	H	H	CH ₂	
2.0102	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	F	CH ₂	
2.0103	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	Cl	CH ₂	
2.0104	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	H	CH ₂	
2.0105	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	F	CH ₂	
2.0106	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	Cl	CH ₂	
2.0107	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	H	CH ₂	
2.0108	H	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	H	F	CH ₂	
2.0109	H	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	H	Cl	CH ₂	
2.0110	H	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	H	H	CH ₂	
2.0111	H	CH ₃	CH ₂ OCH ₂ Ph	H	F	CH ₂	
2.0112	H	CH ₃	CH ₂ OCH ₂ Ph	H	Cl	CH ₂	
2.0113	H	CH ₃	CH ₂ OCH ₂ Ph	H	H	CH ₂	
2.0114	H	CH ₃	CH ₂ OCH ₂ CH ₂ OH	H	F	CH ₂	
2.0115	H	CH ₃	CH ₂ OCH ₂ CH ₂ OH	H	Cl	CH ₂	
2.0116	H	CH ₃	CH ₂ OCH ₂ CH ₂ OH	H	H	CH ₂	

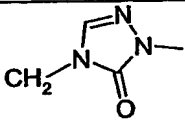
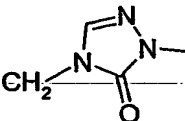
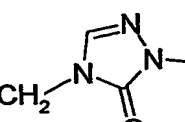
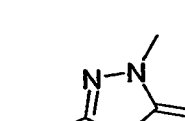
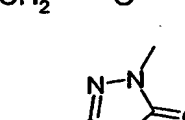
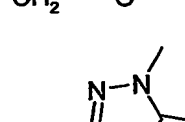
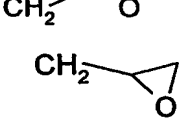
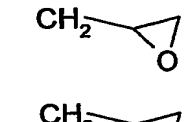
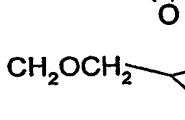
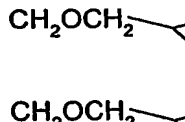
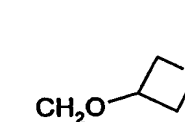


No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	Physical data
2.0117	H	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	H	F	CH ₂	
2.0118	H	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	H	Cl	CH ₂	
2.0119	H	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	H	H	CH ₂	
2.0120	H	CH ₃	CH ₂ OCH ₂ CF ₃	H	F	CH ₂	
2.0121	H	CH ₃	CH ₂ OCH ₂ CF ₃	H	Cl	CH ₂	
2.0122	H	CH ₃	CH ₂ OCH ₂ CF ₃	H	H	CH ₂	
2.0123	H	CH ₃	CH ₂ OCH ₂ CH=CH ₂	H	F	CH ₂	
2.0124	H	CH ₃	CH ₂ OCH ₂ CH=CH ₂	H	Cl	CH ₂	
2.0125	H	CH ₃	CH ₂ OCH ₂ CH=CH ₂	H	H	CH ₂	
2.0126	H	CH ₃	CH ₂ O(CO)CH ₃	H	F	CH ₂	
2.0127	H	CH ₃	CH ₂ O(CO)CH ₃	H	Cl	CH ₂	
2.0128	H	CH ₃	CH ₂ O(CO)CH ₃	H	H	CH ₂	
2.0129	H	CH ₃	CH ₂ OCH ₂ C≡CH	H	F	CH ₂	
2.0130	H	CH ₃	CH ₂ OCH ₂ C≡CH	H	Cl	CH ₂	
2.0131	H	CH ₃	CH ₂ OCH ₂ C≡CH	H	H	CH ₂	
2.0132	H	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	H	F	CH ₂	
2.0133	H	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	H	Cl	CH ₂	
2.0134	H	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	H	H	CH ₂	
2.0135	H	CH ₃		H	F	CH ₂	
2.0136	H	CH ₃		H	Cl	CH ₂	
2.0137	H	CH ₃		H	H	CH ₂	
2.0138	H	CH ₃		H	F	CH ₂	

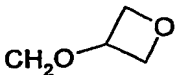
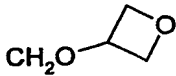
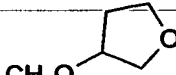
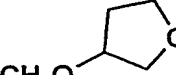
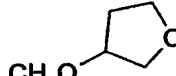
- 107 -

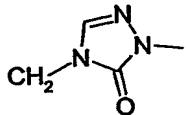
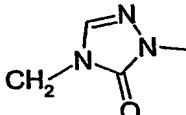
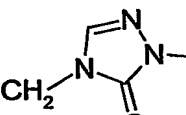
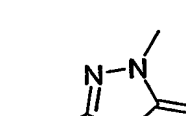
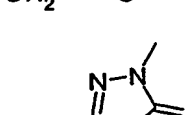
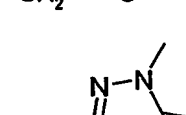
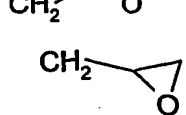
No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	Physical data
2.0139	H	CH ₃		H	Cl	CH ₂	
2.0140	H	CH ₃		H	H	CH ₂	
2.0141	H	CH ₃		H	F	CH ₂	
2.0142	H	CH ₃		H	Cl	CH ₂	
2.0143	H	CH ₃		H	H	CH ₂	
2.0144	H	CH ₃		H	F	CH ₂	
2.0145	H	CH ₃		H	Cl	CH ₂	
2.0146	H	CH ₃		H	H	CH ₂	
2.0147	H	CH ₃		H	F	CH ₂	
2.0148	H	CH ₃		H	Cl	CH ₂	
2.0149	H	CH ₃		H	H	CH ₂	
2.0150	H	CH ₃		H	F	CH ₂	
2.0151	H	CH ₃		H	Cl	CH ₂	
2.0152	H	CH ₃		H	H	CH ₂	
2.0153	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	CH ₃	F	CH ₂	

No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	Physical data
2.0154	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	CH ₃	Cl	CH ₂	
2.0155	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	CH ₃	H	CH ₂	
2.0156	H	H	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	CH ₃	F	CH ₂	
2.0157	H	H	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	CH ₃	Cl	CH ₂	
2.0158	H	H	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	CH ₃	H	CH ₂	
2.0159	H	H	CH ₂ N(CH ₃)SO ₂ CH ₃	CH ₃	F	CH ₂	
2.0160	H	H	CH ₂ N(CH ₃)SO ₂ CH ₃	CH ₃	Cl	CH ₂	
2.0161	H	H	CH ₂ N(CH ₃)SO ₂ CH ₃	CH ₃	H	CH ₂	
2.0162	H	H	CH ₂ OCH ₂ Ph	CH ₃	F	CH ₂	
2.0163	H	H	CH ₂ OCH ₂ Ph	CH ₃	Cl	CH ₂	
2.0164	H	H	CH ₂ OCH ₂ Ph	CH ₃	H	CH ₂	
2.0165	H	H	CH ₂ OCH ₂ CH ₂ OH	CH ₃	F	CH ₂	
2.0166	H	H	CH ₂ OCH ₂ CH ₂ OH	CH ₃	Cl	CH ₂	
2.0167	H	H	CH ₂ OCH ₂ CH ₂ OH	CH ₃	H	CH ₂	
2.0168	H	H	CH ₂ OCH ₂ CH ₂ Cl	CH ₃	F	CH ₂	
2.0169	H	H	CH ₂ OCH ₂ CH ₂ Cl	CH ₃	Cl	CH ₂	
2.0170	H	H	CH ₂ OCH ₂ CH ₂ Cl	CH ₃	H	CH ₂	
2.0171	H	H	CH ₂ OCH ₂ CF ₃	CH ₃	F	CH ₂	
2.0172	H	H	CH ₂ OCH ₂ CF ₃	CH ₃	Cl	CH ₂	
2.0173	H	H	CH ₂ OCH ₂ CF ₃	CH ₃	H	CH ₂	
2.0174	H	H	CH ₂ OCH ₂ CH=CH ₂	CH ₃	F	CH ₂	
2.0175	H	H	CH ₂ OCH ₂ CH=CH ₂	CH ₃	Cl	CH ₂	
2.0176	H	H	CH ₂ OCH ₂ CH=CH ₂	CH ₃	H	CH ₂	
2.0177	H	H	CH ₂ O(CO)CH ₃	CH ₃	F	CH ₂	
2.0178	H	H	CH ₂ O(CO)CH ₃	CH ₃	Cl	CH ₂	
2.0179	H	H	CH ₂ O(CO)CH ₃	CH ₃	H	CH ₂	
2.0180	H	H	CH ₂ OCH ₂ C≡CH	CH ₃	F	CH ₂	
2.0181	H	H	CH ₂ OCH ₂ C≡CH	CH ₃	Cl	CH ₂	
2.0182	H	H	CH ₂ OCH ₂ C≡CH	CH ₃	H	CH ₂	
2.0183	H	H	CH ₂ OCH ₂ C≡CCH ₃	CH ₃	F	CH ₂	
2.0184	H	H	CH ₂ OCH ₂ C≡CCH ₃	CH ₃	Cl	CH ₂	
2.0185	H	H	CH ₂ OCH ₂ C≡CCH ₃	CH ₃	H	CH ₂	

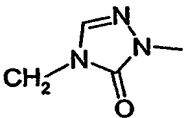
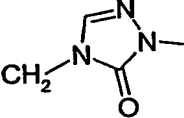
- 109 -

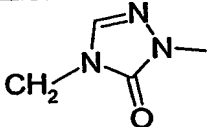
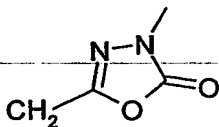
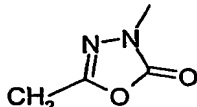
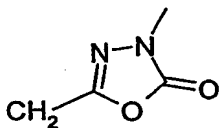
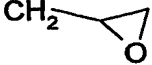
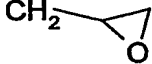
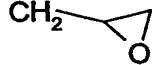
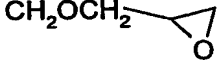
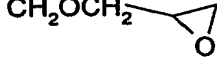
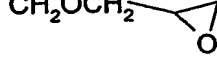
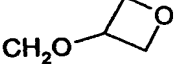
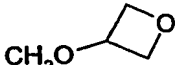
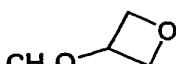
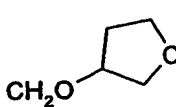
No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	Physical data
2.0186	H	H		CH ₃	F	CH ₂	
2.0187	H	H		CH ₃	Cl	CH ₂	
2.0188	H	H		CH ₃	H	CH ₂	
2.0189	H	H		CH ₃	F	CH ₂	
2.0190	H	H		CH ₃	Cl	CH ₂	
2.0191	H	H		CH ₃	H	CH ₂	
2.0192	H	H		CH ₃	F	CH ₂	
2.0193	H	H		CH ₃	Cl	CH ₂	
2.0194	H	H		CH ₃	H	CH ₂	
2.0195	H	H		CH ₃	F	CH ₂	
2.0196	H	H		CH ₃	Cl	CH ₂	
2.0197	H	H		CH ₃	H	CH ₂	
2.0198	H	H		CH ₃	F	CH ₂	

No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	Physical data
2.0199	H	H		CH ₃	Cl	CH ₂	
2.0200	H	H		CH ₃	H	CH ₂	
2.0201	H	H		CH ₃	F	CH ₂	
2.0202	H	H		CH ₃	Cl	CH ₂	
2.0203	H	H		CH ₃	H	CH ₂	
2.0204	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	CH ₃	F	CH ₂	
2.0205	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	CH ₃	Cl	CH ₂	
2.0206	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	CH ₃	H	CH ₂	
2.0207	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	CH ₃	F	CH ₂	
2.0208	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	CH ₃	Cl	CH ₂	
2.0209	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	CH ₃	H	CH ₂	
2.0210	CH ₃	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	CH ₃	F	CH ₂	
2.0211	CH ₃	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	CH ₃	Cl	CH ₂	
2.0212	CH ₃	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	CH ₃	H	CH ₂	
2.0213	CH ₃	CH ₃	CH ₂ OCH ₂ Ph	CH ₃	F	CH ₂	
2.0214	CH ₃	CH ₃	CH ₂ OCH ₂ Ph	CH ₃	Cl	CH ₂	
2.0215	CH ₃	CH ₃	CH ₂ OCH ₂ Ph	CH ₃	H	CH ₂	
2.0216	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OH	CH ₃	F	CH ₂	
2.0217	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OH	CH ₃	Cl	CH ₂	
2.0218	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OH	CH ₃	H	CH ₂	
2.0219	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	CH ₃	F	CH ₂	
2.0220	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	CH ₃	Cl	CH ₂	
2.0221	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	CH ₃	H	CH ₂	
2.0222	CH ₃	CH ₃	CH ₂ OCH ₂ CF ₃	CH ₃	F	CH ₂	
2.0223	CH ₃	CH ₃	CH ₂ OCH ₂ CF ₃	CH ₃	Cl	CH ₂	
2.0224	CH ₃	CH ₃	CH ₂ OCH ₂ CF ₃	CH ₃	H	CH ₂	

No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	Physical data
2.0225	CH ₃	CH ₃	CH ₂ OCH ₂ CH=CH ₂	CH ₃	F	CH ₂	
2.0226	CH ₃	CH ₃	CH ₂ OCH ₂ CH=CH ₂	CH ₃	Cl	CH ₂	
2.0227	CH ₃	CH ₃	CH ₂ OCH ₂ CH=CH ₂	CH ₃	H	CH ₂	
2.0228	CH ₃	CH ₃	CH ₂ O(CO)CH ₃	CH ₃	F	CH ₂	
2.0229	CH ₃	CH ₃	CH ₂ O(CO)CH ₃	CH ₃	Cl	CH ₂	
2.0230	CH ₃	CH ₃	CH ₂ O(CO)CH ₃	CH ₃	H	CH ₂	
2.0231	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CH	CH ₃	F	CH ₂	
2.0232	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CH	CH ₃	Cl	CH ₂	
2.0233	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CH	CH ₃	H	CH ₂	
2.0234	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	CH ₃	F	CH ₂	
2.0235	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	CH ₃	Cl	CH ₂	
2.0236	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	CH ₃	H	CH ₂	
2.0237	CH ₃	CH ₃		CH ₃	F	CH ₂	
2.0238	CH ₃	CH ₃		CH ₃	Cl	CH ₂	
2.0239	CH ₃	CH ₃		CH ₃	H	CH ₂	
2.0240	CH ₃	CH ₃		CH ₃	F	CH ₂	
2.0241	CH ₃	CH ₃		CH ₃	Cl	CH ₂	
2.0242	CH ₃	CH ₃		CH ₃	H	CH ₂	
2.0243	CH ₃	CH ₃		CH ₃	F	CH ₂	

No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	Physical data
2.0244	CH ₃	CH ₃		CH ₃	Cl	CH ₂	
2.0245	CH ₃	CH ₃		CH ₃	H	CH ₂	
2.0246	CH ₃	CH ₃		CH ₃	F	CH ₂	
2.0247	CH ₃	CH ₃		CH ₃	Cl	CH ₂	
2.0248	CH ₃	CH ₃		CH ₃	H	CH ₂	
2.0249	CH ₃	CH ₃		CH ₃	F	CH ₂	
2.0250	CH ₃	CH ₃		CH ₃	Cl	CH ₂	
2.0251	CH ₃	CH ₃		CH ₃	H	CH ₂	
2.0252	CH ₃	CH ₃		CH ₃	F	CH ₂	
2.0253	CH ₃	CH ₃		CH ₃	Cl	CH ₂	
2.0254	CH ₃	CH ₃		CH ₃	H	CH ₂	
2.0255	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	CH ₃	F	CH ₂	
2.0256	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	CH ₃	Cl	CH ₂	
2.0257	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	CH ₃	H	CH ₂	
2.0258	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	CH ₃	F	CH ₂	
2.0259	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	CH ₃	Cl	CH ₂	
2.0260	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	CH ₃	H	CH ₂	
2.0261	H	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	CH ₃	F	CH ₂	
2.0262	H	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	CH ₃	Cl	CH ₂	
2.0263	H	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	CH ₃	H	CH ₂	

No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	Physical data
2.0264	H	CH ₃	CH ₂ OCH ₂ Ph	CH ₃	F	CH ₂	
2.0265	H	CH ₃	CH ₂ OCH ₂ Ph	CH ₃	Cl	CH ₂	
2.0266	H	CH ₃	CH ₂ OCH ₂ Ph	CH ₃	H	CH ₂	
2.0267	H	CH ₃	CH ₂ OCH ₂ CH ₂ OH	CH ₃	F	CH ₂	
2.0268	H	CH ₃	CH ₂ OCH ₂ CH ₂ OH	CH ₃	Cl	CH ₂	
2.0269	H	CH ₃	CH ₂ OCH ₂ CH ₂ OH	CH ₃	H	CH ₂	
2.0270	H	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	CH ₃	F	CH ₂	
2.0271	H	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	CH ₃	Cl	CH ₂	
2.0272	H	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	CH ₃	H	CH ₂	
2.0273	H	CH ₃	CH ₂ OCH ₂ CF ₃	CH ₃	F	CH ₂	
2.0274	H	CH ₃	CH ₂ OCH ₂ CF ₃	CH ₃	Cl	CH ₂	
2.0275	H	CH ₃	CH ₂ OCH ₂ CF ₃	CH ₃	H	CH ₂	
2.0276	H	CH ₃	CH ₂ OCH ₂ CH=CH ₂	CH ₃	F	CH ₂	
2.0277	H	CH ₃	CH ₂ OCH ₂ CH=CH ₂	CH ₃	Cl	CH ₂	
2.0278	H	CH ₃	CH ₂ OCH ₂ CH=CH ₂	CH ₃	H	CH ₂	
2.0279	H	CH ₃	CH ₂ O(CO)CH ₃	CH ₃	F	CH ₂	
2.0280	H	CH ₃	CH ₂ O(CO)CH ₃	CH ₃	Cl	CH ₂	
2.0281	H	CH ₃	CH ₂ O(CO)CH ₃	CH ₃	H	CH ₂	
2.0282	H	CH ₃	CH ₂ OCH ₂ C≡CH	CH ₃	F	CH ₂	
2.0283	H	CH ₃	CH ₂ OCH ₂ C≡CH	CH ₃	Cl	CH ₂	
2.0284	H	CH ₃	CH ₂ OCH ₂ C≡CH	CH ₃	H	CH ₂	
2.0285	H	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	CH ₃	F	CH ₂	
2.0286	H	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	CH ₃	Cl	CH ₂	
2.0287	H	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	CH ₃	H	CH ₂	
2.0288	H	CH ₃		CH ₃	F	CH ₂	
2.0289	H	CH ₃		CH ₃	Cl	CH ₂	

No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	Physical data
2.0290	H	CH ₃		CH ₃	H	CH ₂	
2.0291	H	CH ₃		CH ₃	F	CH ₂	
2.0292	H	CH ₃		CH ₃	Cl	CH ₂	
2.0293	H	CH ₃		CH ₃	H	CH ₂	
2.0294	H	CH ₃		CH ₃	F	CH ₂	
2.0295	H	CH ₃		CH ₃	Cl	CH ₂	
2.0296	H	CH ₃		CH ₃	H	CH ₂	
2.0297	H	CH ₃		CH ₃	F	CH ₂	
2.0298	H	CH ₃		CH ₃	Cl	CH ₂	
2.0299	H	CH ₃		CH ₃	H	CH ₂	
2.0300	H	CH ₃		CH ₃	F	CH ₂	
2.0301	H	CH ₃		CH ₃	Cl	CH ₂	
2.0302	H	CH ₃		CH ₃	H	CH ₂	
2.0303	H	CH ₃		CH ₃	F	CH ₂	

- 115 -

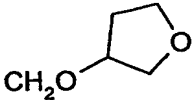
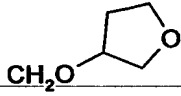
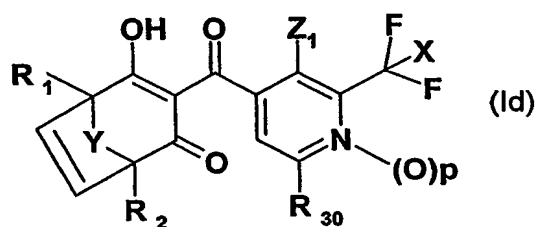
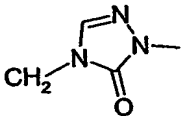
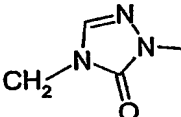
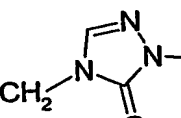
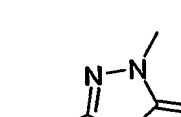
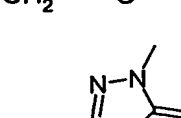
No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	Physical data
2.0304	H	CH ₃		CH ₃	Cl	CH ₂	
2.0305	H	CH ₃		CH ₃	H	CH ₂	

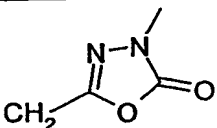
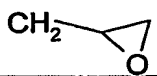
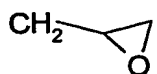
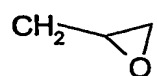
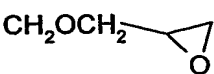
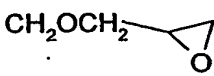
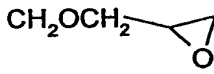
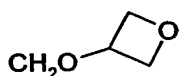
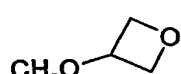
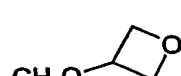

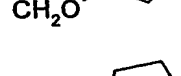
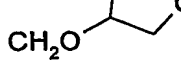
Table 3: Compounds of formula Id:

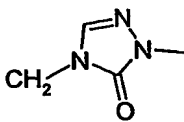


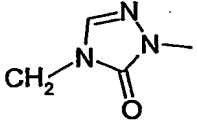
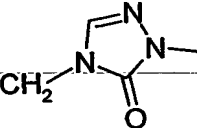
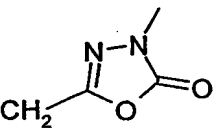
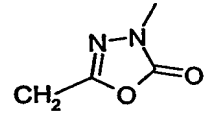
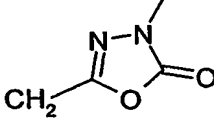
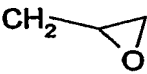
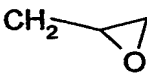
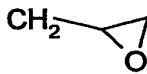
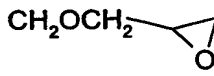
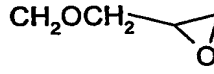
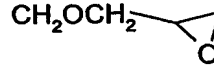
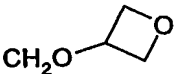
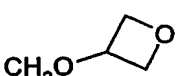
No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Phys. data, remarks
3.0000	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	H	F	CH ₂	0	
3.0001	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	H	Cl	CH ₂	0	
3.0002	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	H	H	CH ₂	0	
3.0003	H	H	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	F	CH ₂	0	
3.0004	H	H	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	Cl	CH ₂	0	
3.0005	H	H	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	H	CH ₂	0	
3.0006	H	H	CH ₂ N(CH ₃)SO ₂ CH ₃	H	F	CH ₂	0	
3.0007	H	H	CH ₂ N(CH ₃)SO ₂ CH ₃	H	Cl	CH ₂	0	
3.0008	H	H	CH ₂ N(CH ₃)SO ₂ CH ₃	H	H	CH ₂	0	
3.0009	H	H	CH ₂ OCH ₂ Ph	H	F	CH ₂	0	
3.0010	H	H	CH ₂ OCH ₂ Ph	H	Cl	CH ₂	0	
3.0011	H	H	CH ₂ OCH ₂ Ph	H	H	CH ₂	0	
3.0012	H	H	CH ₂ OCH ₂ CH ₂ OH	H	F	CH ₂	0	
3.0013	H	H	CH ₂ OCH ₂ CH ₂ OH	H	Cl	CH ₂	0	
3.0014	H	H	CH ₂ OCH ₂ CH ₂ OH	H	H	CH ₂	0	
3.0015	H	H	CH ₂ OCH ₂ CH ₂ Cl	H	F	CH ₂	0	
3.0016	H	H	CH ₂ OCH ₂ CH ₂ Cl	H	Cl	CH ₂	0	

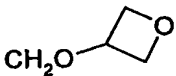
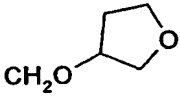
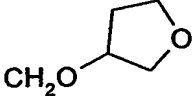
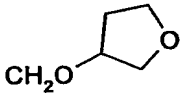
No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Phys. data, remarks
3.0017	H	H	CH ₂ OCH ₂ CH ₂ Cl	H	H	CH ₂	0	
3.0018	H	H	CH ₂ OCH ₂ CF ₃	H	F	CH ₂	0	
3.0019	H	H	CH ₂ OCH ₂ CF ₃	H	Cl	CH ₂	0	
3.0020	H	H	CH ₂ OCH ₂ CF ₃	H	H	CH ₂	0	
3.0021	H	H	CH ₂ OCH ₂ CH=CH ₂	H	F	CH ₂	0	
3.0022	H	H	CH ₂ OCH ₂ CH=CH ₂	H	Cl	CH ₂	0	
3.0023	H	H	CH ₂ OCH ₂ CH=CH ₂	H	H	CH ₂	0	
3.0024	H	H	CH ₂ O(CO)CH ₃	H	F	CH ₂	0	
3.0025	H	H	CH ₂ O(CO)CH ₃	H	Cl	CH ₂	0	
3.0026	H	H	CH ₂ O(CO)CH ₃	H	H	CH ₂	0	
3.0027	H	H	CH ₂ OCH ₂ C≡CH	H	F	CH ₂	0	
3.0028	H	H	CH ₂ OCH ₂ C≡CH	H	Cl	CH ₂	0	
3.0029	H	H	CH ₂ OCH ₂ C≡CH	H	H	CH ₂	0	
3.0030	H	H	CH ₂ OCH ₂ C≡CCH ₃	H	F	CH ₂	0	
3.0031	H	H	CH ₂ OCH ₂ C≡CCH ₃	H	Cl	CH ₂	0	
3.0032	H	H	CH ₂ OCH ₂ C≡CCH ₃	H	H	CH ₂	0	
3.0033	H	H		H	F	CH ₂	0	
3.0034	H	H		H	Cl	CH ₂	0	
3.0035	H	H		H	H	CH ₂	0	
3.0036	H	H		H	F	CH ₂	0	
3.0037	H	H		H	Cl	CH ₂	0	

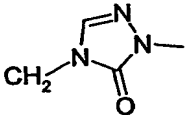
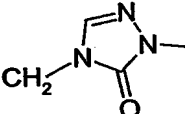
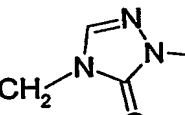
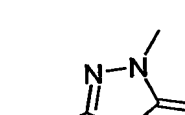
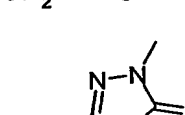
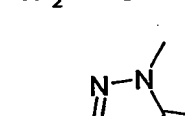
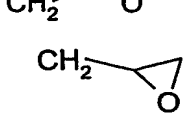
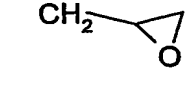
- 117 -

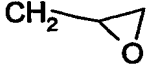
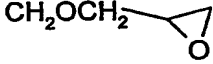
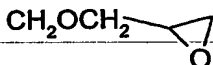
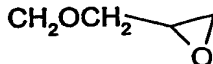
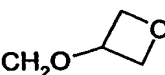
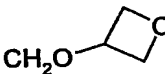
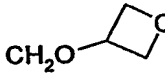
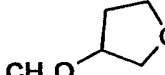
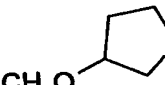
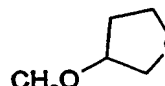
No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Phys. data, remarks
3.0038	H	H		H	H	CH ₂	0	
3.0039	H	H		H	F	CH ₂	0	
3.0040	H	H		H	Cl	CH ₂	0	
3.0041	H	H		H	H	CH ₂	0	
3.0042	H	H		H	F	CH ₂	0	
3.0043	H	H		H	Cl	CH ₂	0	
3.0044	H	H		H	H	CH ₂	0	
3.0045	H	H		H	F	CH ₂	0	
3.0046	H	H		H	Cl	CH ₂	0	
3.0047	H	H		H	H	CH ₂	0	
3.0048	H	H		H	F	CH ₂	0	
3.0049	H	H		H	Cl	CH ₂	0	
3.0050	H	H		H	H	CH ₂	0	
3.0051	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	F	CH ₂	0	
3.0052	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	Cl	CH ₂	0	
3.0053	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	H	CH ₂	0	
3.0054	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	F	CH ₂	0	

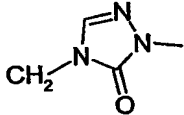
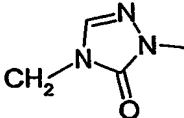
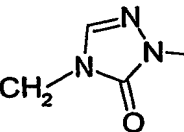
No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Phys. data, remarks
3.0055	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	Cl	CH ₂	0	
3.0056	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	H	CH ₂	0	
3.0057	CH ₃	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	H	F	CH ₂	0	
3.0058	CH ₃	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	H	Cl	CH ₂	0	
3.0059	CH ₃	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	H	H	CH ₂	0	
3.0060	CH ₃	CH ₃	CH ₂ OCH ₂ Ph	H	F	CH ₂	0	
3.0061	CH ₃	CH ₃	CH ₂ OCH ₂ Ph	H	Cl	CH ₂	0	
3.0062	CH ₃	CH ₃	CH ₂ OCH ₂ Ph	H	H	CH ₂	0	
3.0063	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OH	H	F	CH ₂	0	
3.0064	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OH	H	Cl	CH ₂	0	
3.0065	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OH	H	H	CH ₂	0	
3.0066	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	H	F	CH ₂	0	
3.0067	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	H	Cl	CH ₂	0	
3.0068	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	H	H	CH ₂	0	
3.0069	CH ₃	CH ₃	CH ₂ OCH ₂ CF ₃	H	F	CH ₂	0	
3.0070	CH ₃	CH ₃	CH ₂ OCH ₂ CF ₃	H	Cl	CH ₂	0	
3.0071	CH ₃	CH ₃	CH ₂ OCH ₂ CF ₃	H	H	CH ₂	0	
3.0072	CH ₃	CH ₃	CH ₂ OCH ₂ CH=CH ₂	H	F	CH ₂	0	
3.0073	CH ₃	CH ₃	CH ₂ OCH ₂ CH=CH ₂	H	Cl	CH ₂	0	
3.0074	CH ₃	CH ₃	CH ₂ OCH ₂ CH=CH ₂	H	H	CH ₂	0	
3.0075	CH ₃	CH ₃	CH ₂ O(CO)CH ₃	H	F	CH ₂	0	
3.0076	CH ₃	CH ₃	CH ₂ O(CO)CH ₃	H	Cl	CH ₂	0	
3.0077	CH ₃	CH ₃	CH ₂ O(CO)CH ₃	H	H	CH ₂	0	
3.0078	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CH	H	F	CH ₂	0	
3.0079	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CH	H	Cl	CH ₂	0	
3.0080	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CH	H	H	CH ₂	0	
3.0081	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	H	F	CH ₂	0	
3.0082	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	H	Cl	CH ₂	0	
3.0083	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	H	H	CH ₂	0	
3.0084	CH ₃	CH ₃		H	F	CH ₂	0	

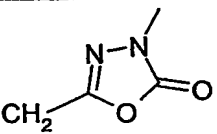
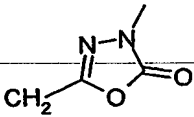
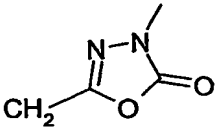
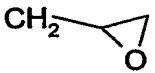
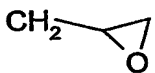
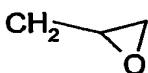
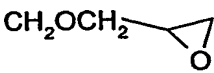
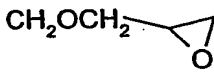
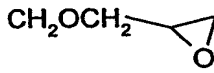
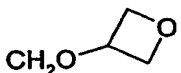
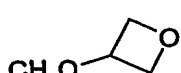
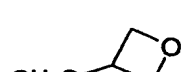

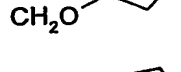
No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Phys. data, remarks
3.0085	CH ₃	CH ₃		H	Cl	CH ₂	0	
3.0086	CH ₃	CH ₃		H	H	CH ₂	0	
3.0087	CH ₃	CH ₃		H	F	CH ₂	0	
3.0088	CH ₃	CH ₃		H	Cl	CH ₂	0	
3.0089	CH ₃	CH ₃		H	H	CH ₂	0	
3.0090	CH ₃	CH ₃		H	F	CH ₂	0	
3.0091	CH ₃	CH ₃		H	Cl	CH ₂	0	
3.0092	CH ₃	CH ₃		H	H	CH ₂	0	
3.0093	CH ₃	CH ₃		H	F	CH ₂	0	
3.0094	CH ₃	CH ₃		H	Cl	CH ₂	0	
3.0095	CH ₃	CH ₃		H	H	CH ₂	0	
3.0096	CH ₃	CH ₃		H	F	CH ₂	0	
3.0097	CH ₃	CH ₃		H	Cl	CH ₂	0	

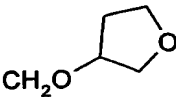
No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Phys. data, remarks
3.0098	CH ₃	CH ₃		H	H	CH ₂	0	
3.0099	CH ₃	CH ₃		H	F	CH ₂	0	
3.0100	CH ₃	CH ₃		H	Cl	CH ₂	0	
3.0101	CH ₃	CH ₃		H	H	CH ₂	0	
3.0102	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	F	CH ₂	0	
3.0103	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	Cl	CH ₂	0	
3.0104	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	H	H	CH ₂	0	
3.0105	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	F	CH ₂	0	
3.0106	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	Cl	CH ₂	0	
3.0107	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	H	H	CH ₂	0	
3.0108	H	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	H	F	CH ₂	0	
3.0109	H	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	H	Cl	CH ₂	0	
3.0110	H	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	H	H	CH ₂	0	
3.0111	H	CH ₃	CH ₂ OCH ₂ Ph	H	F	CH ₂	0	
3.0112	H	CH ₃	CH ₂ OCH ₂ Ph	H	Cl	CH ₂	0	
3.0113	H	CH ₃	CH ₂ OCH ₂ Ph	H	H	CH ₂	0	
3.0114	H	CH ₃	CH ₂ OCH ₂ CH ₂ OH	H	F	CH ₂	0	
3.0115	H	CH ₃	CH ₂ OCH ₂ CH ₂ OH	H	Cl	CH ₂	0	
3.0116	H	CH ₃	CH ₂ OCH ₂ CH ₂ OH	H	H	CH ₂	0	
3.0117	H	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	H	F	CH ₂	0	
3.0118	H	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	H	Cl	CH ₂	0	
3.0119	H	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	H	H	CH ₂	0	
3.0120	H	CH ₃	CH ₂ OCH ₂ CF ₃	H	F	CH ₂	0	
3.0121	H	CH ₃	CH ₂ OCH ₂ CF ₃	H	Cl	CH ₂	0	
3.0122	H	CH ₃	CH ₂ OCH ₂ CF ₃	H	H	CH ₂	0	
3.0123	H	CH ₃	CH ₂ OCH ₂ CH=CH ₂	H	F	CH ₂	0	
3.0124	H	CH ₃	CH ₂ OCH ₂ CH=CH ₂	H	Cl	CH ₂	0	

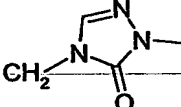
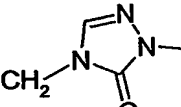
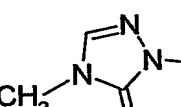
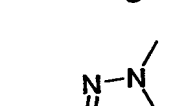
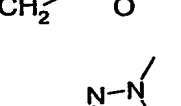
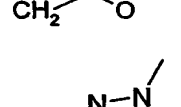
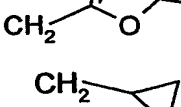
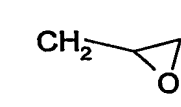
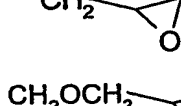
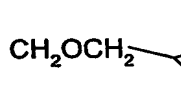

No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Phys. data, remarks
3.0125	H	CH ₃	CH ₂ OCH ₂ CH=CH ₂	H	H	CH ₂	0	
3.0126	H	CH ₃	CH ₂ O(CO)CH ₃	H	F	CH ₂	0	
3.0127	H	CH ₃	CH ₂ O(CO)CH ₃	H	Cl	CH ₂	0	
3.0128	H	CH ₃	CH ₂ O(CO)CH ₃	H	H	CH ₂	0	
3.0129	H	CH ₃	CH ₂ OCH ₂ C≡CH	H	F	CH ₂	0	
3.0130	H	CH ₃	CH ₂ OCH ₂ C≡CH	H	Cl	CH ₂	0	
3.0131	H	CH ₃	CH ₂ OCH ₂ C≡CH	H	H	CH ₂	0	
3.0132	H	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	H	F	CH ₂	0	
3.0133	H	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	H	Cl	CH ₂	0	
3.0134	H	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	H	H	CH ₂	0	
3.0135	H	CH ₃		H	F	CH ₂	0	
3.0136	H	CH ₃		H	Cl	CH ₂	0	
3.0137	H	CH ₃		H	H	CH ₂	0	
3.0138	H	CH ₃		H	F	CH ₂	0	
3.0139	H	CH ₃		H	Cl	CH ₂	0	
3.0140	H	CH ₃		H	H	CH ₂	0	
3.0141	H	CH ₃		H	F	CH ₂	0	
3.0142	H	CH ₃		H	Cl	CH ₂	0	

No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Phys. data, remarks
3.0143	H	CH ₃		H	H	CH ₂	0	
3.0144	H	CH ₃		H	F	CH ₂	0	
3.0145	H	CH ₃		H	Cl	CH ₂	0	
3.0146	H	CH ₃		H	H	CH ₂	0	
3.0147	H	CH ₃		H	F	CH ₂	0	
3.0148	H	CH ₃		H	Cl	CH ₂	0	
3.0149	H	CH ₃		H	H	CH ₂	0	
3.0150	H	CH ₃		H	F	CH ₂	0	
3.0151	H	CH ₃		H	Cl	CH ₂	0	
3.0152	H	CH ₃		H	H	CH ₂	0	
3.0153	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	CH ₃	F	CH ₂	0	
3.0154	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	CH ₃	Cl	CH ₂	0	
3.0155	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	CH ₃	H	CH ₂	0	
3.0156	H	H	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	CH ₃	F	CH ₂	0	
3.0157	H	H	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	CH ₃	Cl	CH ₂	0	
3.0158	H	H	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	CH ₃	H	CH ₂	0	
3.0159	H	H	CH ₂ N(CH ₃)SO ₂ CH ₃	CH ₃	F	CH ₂	0	
3.0160	H	H	CH ₂ N(CH ₃)SO ₂ CH ₃	CH ₃	Cl	CH ₂	0	
3.0161	H	H	CH ₂ N(CH ₃)SO ₂ CH ₃	CH ₃	H	CH ₂	0	
3.0162	H	H	CH ₂ OCH ₂ Ph	CH ₃	F	CH ₂	0	
3.0163	H	H	CH ₂ OCH ₂ Ph	CH ₃	Cl	CH ₂	0	








No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Phys. data, remarks
3.0164	H	H	CH ₂ OCH ₂ Ph	CH ₃	H	CH ₂	0	
3.0165	H	H	CH ₂ OCH ₂ CH ₂ OH	CH ₃	F	CH ₂	0	
3.0166	H	H	CH ₂ OCH ₂ CH ₂ OH	CH ₃	Cl	CH ₂	0	
3.0167	H	H	CH ₂ OCH ₂ CH ₂ OH	CH ₃	H	CH ₂	0	
3.0168	H	H	CH ₂ OCH ₂ CH ₂ Cl	CH ₃	F	CH ₂	0	
3.0169	H	H	CH ₂ OCH ₂ CH ₂ Cl	CH ₃	Cl	CH ₂	0	
3.0170	H	H	CH ₂ OCH ₂ CH ₂ Cl	CH ₃	H	CH ₂	0	
3.0171	H	H	CH ₂ OCH ₂ CF ₃	CH ₃	F	CH ₂	0	
3.0172	H	H	CH ₂ OCH ₂ CF ₃	CH ₃	Cl	CH ₂	0	
3.0173	H	H	CH ₂ OCH ₂ CF ₃	CH ₃	H	CH ₂	0	
3.0174	H	H	CH ₂ OCH ₂ CH=CH ₂	CH ₃	F	CH ₂	0	
3.0175	H	H	CH ₂ OCH ₂ CH=CH ₂	CH ₃	Cl	CH ₂	0	
3.0176	H	H	CH ₂ OCH ₂ CH=CH ₂	CH ₃	H	CH ₂	0	
3.0177	H	H	CH ₂ O(CO)CH ₃	CH ₃	F	CH ₂	0	
3.0178	H	H	CH ₂ O(CO)CH ₃	CH ₃	Cl	CH ₂	0	
3.0179	H	H	CH ₂ O(CO)CH ₃	CH ₃	H	CH ₂	0	
3.0180	H	H	CH ₂ OCH ₂ C≡CH	CH ₃	F	CH ₂	0	
3.0181	H	H	CH ₂ OCH ₂ C≡CH	CH ₃	Cl	CH ₂	0	
3.0182	H	H	CH ₂ OCH ₂ C≡CH	CH ₃	H	CH ₂	0	
3.0183	H	H	CH ₂ OCH ₂ C≡CCH ₃	CH ₃	F	CH ₂	0	
3.0184	H	H	CH ₂ OCH ₂ C≡CCH ₃	CH ₃	Cl	CH ₂	0	
3.0185	H	H	CH ₂ OCH ₂ C≡CCH ₃	CH ₃	H	CH ₂	0	
3.0186	H	H		CH ₃	F	CH ₂	0	
3.0187	H	H		CH ₃	Cl	CH ₂	0	
3.0188	H	H		CH ₃	H	CH ₂	0	

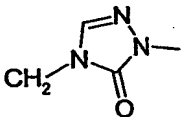
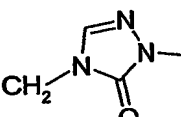
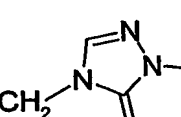
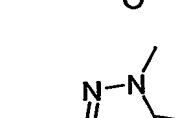
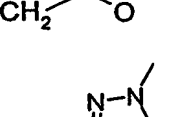
No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Phys. data, remarks
3.0189	H	H		CH ₃	F	CH ₂	0	
3.0190	H	H		CH ₃	Cl	CH ₂	0	
3.0191	H	H		CH ₃	H	CH ₂	0	
3.0192	H	H		CH ₃	F	CH ₂	0	
3.0193	H	H		CH ₃	Cl	CH ₂	0	
3.0194	H	H		CH ₃	H	CH ₂	0	
3.0195	H	H		CH ₃	F	CH ₂	0	
3.0196	H	H		CH ₃	Cl	CH ₂	0	
3.0197	H	H		CH ₃	H	CH ₂	0	
3.0198	H	H		CH ₃	F	CH ₂	0	
3.0199	H	H		CH ₃	Cl	CH ₂	0	
3.0200	H	H		CH ₃	H	CH ₂	0	
3.0201	H	H		CH ₃	F	CH ₂	0	
3.0202	H	H		CH ₃	Cl	CH ₂	0	

No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Phys. data, remarks
3.0203	H	H		CH ₃	H	CH ₂	0	
3.0204	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	CH ₃	F	CH ₂	0	
3.0205	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	CH ₃	Cl	CH ₂	0	
3.0206	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	CH ₃	H	CH ₂	0	
3.0207	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	CH ₃	F	CH ₂	0	
3.0208	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	CH ₃	Cl	CH ₂	0	
3.0209	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	CH ₃	H	CH ₂	0	
3.0210	CH ₃	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	CH ₃	F	CH ₂	0	
3.0211	CH ₃	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	CH ₃	Cl	CH ₂	0	
3.0212	CH ₃	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	CH ₃	H	CH ₂	0	
3.0213	CH ₃	CH ₃	CH ₂ OCH ₂ Ph	CH ₃	F	CH ₂	0	
3.0214	CH ₃	CH ₃	CH ₂ OCH ₂ Ph	CH ₃	Cl	CH ₂	0	
3.0215	CH ₃	CH ₃	CH ₂ OCH ₂ Ph	CH ₃	H	CH ₂	0	
3.0216	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OH	CH ₃	F	CH ₂	0	
3.0217	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OH	CH ₃	Cl	CH ₂	0	
3.0218	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OH	CH ₃	H	CH ₂	0	
3.0219	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	CH ₃	F	CH ₂	0	
3.0220	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	CH ₃	Cl	CH ₂	0	
3.0221	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	CH ₃	H	CH ₂	0	
3.0222	CH ₃	CH ₃	CH ₂ OCH ₂ CF ₃	CH ₃	F	CH ₂	0	
3.0223	CH ₃	CH ₃	CH ₂ OCH ₂ CF ₃	CH ₃	Cl	CH ₂	0	
3.0224	CH ₃	CH ₃	CH ₂ OCH ₂ CF ₃	CH ₃	H	CH ₂	0	
3.0225	CH ₃	CH ₃	CH ₂ OCH ₂ CH=CH ₂	CH ₃	F	CH ₂	0	
3.0226	CH ₃	CH ₃	CH ₂ OCH ₂ CH=CH ₂	CH ₃	Cl	CH ₂	0	
3.0227	CH ₃	CH ₃	CH ₂ OCH ₂ CH=CH ₂	CH ₃	H	CH ₂	0	
3.0228	CH ₃	CH ₃	CH ₂ O(CO)CH ₃	CH ₃	F	CH ₂	0	
3.0229	CH ₃	CH ₃	CH ₂ O(CO)CH ₃	CH ₃	Cl	CH ₂	0	
3.0230	CH ₃	CH ₃	CH ₂ O(CO)CH ₃	CH ₃	H	CH ₂	0	
3.0231	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CH	CH ₃	F	CH ₂	0	
3.0232	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CH	CH ₃	Cl	CH ₂	0	
3.0233	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CH	CH ₃	H	CH ₂	0	

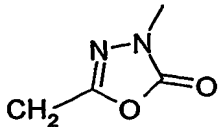
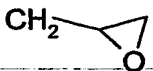
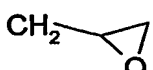
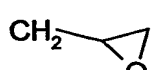
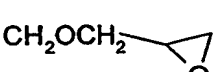
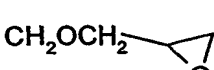
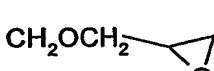

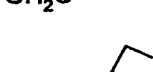
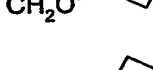
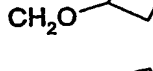
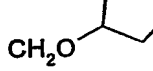
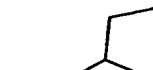
No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Phys. data, remarks
3.0234	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	CH ₃	F	CH ₂	0	
3.0235	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	CH ₃	Cl	CH ₂	0	
3.0236	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	CH ₃	H	CH ₂	0	
3.0237	CH ₃	CH ₃		CH ₃	F	CH ₂	0	
3.0238	CH ₃	CH ₃		CH ₃	Cl	CH ₂	0	
3.0239	CH ₃	CH ₃		CH ₃	H	CH ₂	0	
3.0240	CH ₃	CH ₃		CH ₃	F	CH ₂	0	
3.0241	CH ₃	CH ₃		CH ₃	Cl	CH ₂	0	
3.0242	CH ₃	CH ₃		CH ₃	H	CH ₂	0	
3.0243	CH ₃	CH ₃		CH ₃	F	CH ₂	0	
3.0244	CH ₃	CH ₃		CH ₃	Cl	CH ₂	0	
3.0245	CH ₃	CH ₃		CH ₃	H	CH ₂	0	
3.0246	CH ₃	CH ₃	CH ₂ OCH ₂ 	CH ₃	F	CH ₂	0	
3.0247	CH ₃	CH ₃	CH ₂ OCH ₂ 	CH ₃	Cl	CH ₂	0	

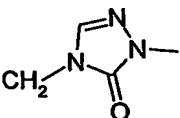
- 127 -

No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Phys. data, remarks
3.0248	CH ₃	CH ₃	CH ₂ OCH ₂ 	CH ₃	H	CH ₂	0	
3.0249	CH ₃	CH ₃	CH ₂ O 	CH ₃	F	CH ₂	0	
3.0250	CH ₃	CH ₃	CH ₂ O 	CH ₃	Cl	CH ₂	0	
3.0251	CH ₃	CH ₃	CH ₂ O 	CH ₃	H	CH ₂	0	
3.0252	CH ₃	CH ₃	CH ₂ O 	CH ₃	F	CH ₂	0	
3.0253	CH ₃	CH ₃	CH ₂ O 	CH ₃	Cl	CH ₂	0	
3.0254	CH ₃	CH ₃	CH ₂ O 	CH ₃	H	CH ₂	0	
3.0255	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	CH ₃	F	CH ₂	0	
3.0256	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	CH ₃	Cl	CH ₂	0	
3.0257	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	CH ₃	H	CH ₂	0	
3.0258	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	CH ₃	F	CH ₂	0	
3.0259	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	CH ₃	Cl	CH ₂	0	
3.0260	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	CH ₃	H	CH ₂	0	
3.0261	H	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	CH ₃	F	CH ₂	0	
3.0262	H	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	CH ₃	Cl	CH ₂	0	
3.0263	H	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	CH ₃	H	CH ₂	0	
3.0264	H	CH ₃	CH ₂ OCH ₂ Ph	CH ₃	F	CH ₂	0	
3.0265	H	CH ₃	CH ₂ OCH ₂ Ph	CH ₃	Cl	CH ₂	0	
3.0266	H	CH ₃	CH ₂ OCH ₂ Ph	CH ₃	H	CH ₂	0	
3.0267	H	CH ₃	CH ₂ OCH ₂ CH ₂ OH	CH ₃	F	CH ₂	0	
3.0268	H	CH ₃	CH ₂ OCH ₂ CH ₂ OH	CH ₃	Cl	CH ₂	0	
3.0269	H	CH ₃	CH ₂ OCH ₂ CH ₂ OH	CH ₃	H	CH ₂	0	
3.0270	H	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	CH ₃	F	CH ₂	0	
3.0271	H	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	CH ₃	Cl	CH ₂	0	

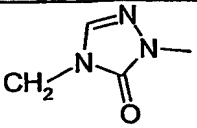
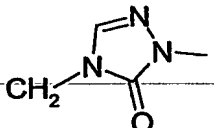
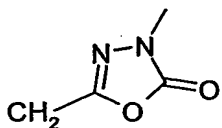
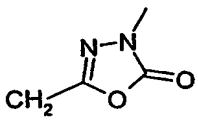
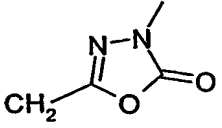
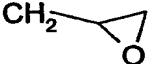
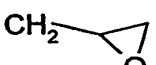
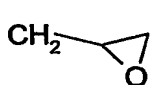
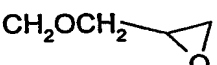
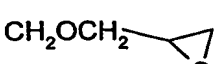
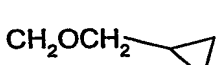
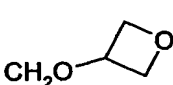
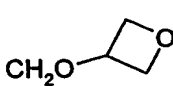
No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Phys. data, remarks
3.0272	H	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	CH ₃	H	CH ₂	0	
3.0273	H	CH ₃	CH ₂ OCH ₂ CF ₃	CH ₃	F	CH ₂	0	
3.0274	H	CH ₃	CH ₂ OCH ₂ CF ₃	CH ₃	Cl	CH ₂	0	
3.0275	H	CH ₃	CH ₂ OCH ₂ CF ₃	CH ₃	H	CH ₂	0	
3.0276	H	CH ₃	CH ₂ OCH ₂ CH=CH ₂	CH ₃	F	CH ₂	0	
3.0277	H	CH ₃	CH ₂ OCH ₂ CH=CH ₂	CH ₃	Cl	CH ₂	0	
3.0278	H	CH ₃	CH ₂ OCH ₂ CH=CH ₂	CH ₃	H	CH ₂	0	
3.0279	H	CH ₃	CH ₂ O(CO)CH ₃	CH ₃	F	CH ₂	0	
3.0280	H	CH ₃	CH ₂ O(CO)CH ₃	CH ₃	Cl	CH ₂	0	
3.0281	H	CH ₃	CH ₂ O(CO)CH ₃	CH ₃	H	CH ₂	0	
3.0282	H	CH ₃	CH ₂ OCH ₂ C≡CH	CH ₃	F	CH ₂	0	
3.0283	H	CH ₃	CH ₂ OCH ₂ C≡CH	CH ₃	Cl	CH ₂	0	
3.0284	H	CH ₃	CH ₂ OCH ₂ C≡CH	CH ₃	H	CH ₂	0	
3.0285	H	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	CH ₃	F	CH ₂	0	
3.0286	H	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	CH ₃	Cl	CH ₂	0	
3.0287	H	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	CH ₃	H	CH ₂	0	
3.0288	H	CH ₃		CH ₃	F	CH ₂	0	
3.0289	H	CH ₃		CH ₃	Cl	CH ₂	0	
3.0290	H	CH ₃		CH ₃	H	CH ₂	0	
3.0291	H	CH ₃		CH ₃	F	CH ₂	0	
3.0292	H	CH ₃		CH ₃	Cl	CH ₂	0	

- 129 -

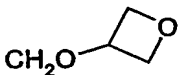
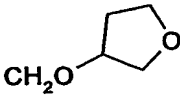
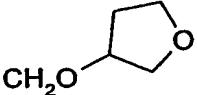
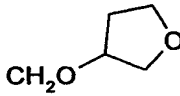
No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Phys. data, remarks
3.0293	H	CH ₃		CH ₃	H	CH ₂	0	
3.0294	H	CH ₃		CH ₃	F	CH ₂	0	
3.0295	H	CH ₃		CH ₃	Cl	CH ₂	0	
3.0296	H	CH ₃		CH ₃	H	CH ₂	0	
3.0297	H	CH ₃		CH ₃	F	CH ₂	0	
3.0298	H	CH ₃		CH ₃	Cl	CH ₂	0	
3.0299	H	CH ₃		CH ₃	H	CH ₂	0	
3.0300	H	CH ₃		CH ₃	F	CH ₂	0	
3.0301	H	CH ₃		CH ₃	Cl	CH ₂	0	
3.0302	H	CH ₃		CH ₃	H	CH ₂	0	
3.0303	H	CH ₃		CH ₃	F	CH ₂	0	
3.0304	H	CH ₃		CH ₃	Cl	CH ₂	0	
3.0305	H	CH ₃		CH ₃	H	CH ₂	0	
3.0306	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	CH ₃	F	CH ₂	1	
3.0307	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	CH ₃	Cl	CH ₂	1	
3.0308	H	H	CH ₂ OCH ₂ CH ₂ OCH ₃	CH ₃	H	CH ₂	1	
3.0309	H	H	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	CH ₃	F	CH ₂	1	

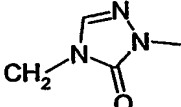
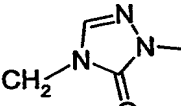
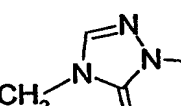
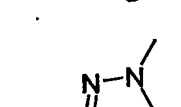
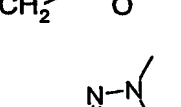
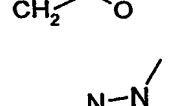
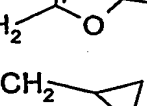
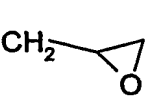
No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Phys. data, remarks
3.0310	H	H	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	CH ₃	Cl	CH ₂	1	
3.0311	H	H	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	CH ₃	H	CH ₂	1	
3.0312	H	H	CH ₂ N(CH ₃)SO ₂ CH ₃	CH ₃	F	CH ₂	1	
3.0313	H	H	CH ₂ N(CH ₃)SO ₂ CH ₃	CH ₃	Cl	CH ₂	1	
3.0314	H	H	CH ₂ N(CH ₃)SO ₂ CH ₃	CH ₃	H	CH ₂	1	
3.0315	H	H	CH ₂ OCH ₂ Ph	CH ₃	F	CH ₂	1	
3.0316	H	H	CH ₂ OCH ₂ Ph	CH ₃	Cl	CH ₂	1	
3.0317	H	H	CH ₂ OCH ₂ Ph	CH ₃	H	CH ₂	1	
3.0318	H	H	CH ₂ OCH ₂ CH ₂ OH	CH ₃	F	CH ₂	1	
3.0319	H	H	CH ₂ OCH ₂ CH ₂ OH	CH ₃	Cl	CH ₂	1	
3.0320	H	H	CH ₂ OCH ₂ CH ₂ OH	CH ₃	H	CH ₂	1	
3.0321	H	H	CH ₂ OCH ₂ CH ₂ Cl	CH ₃	F	CH ₂	1	
3.0322	H	H	CH ₂ OCH ₂ CH ₂ Cl	CH ₃	Cl	CH ₂	1	
3.0323	H	H	CH ₂ OCH ₂ CH ₂ Cl	CH ₃	H	CH ₂	1	
3.0324	H	H	CH ₂ OCH ₂ CF ₃	CH ₃	F	CH ₂	1	
3.0325	H	H	CH ₂ OCH ₂ CF ₃	CH ₃	Cl	CH ₂	1	
3.0326	H	H	CH ₂ OCH ₂ CF ₃	CH ₃	H	CH ₂	1	
3.0327	H	H	CH ₂ OCH ₂ CH=CH ₂	CH ₃	F	CH ₂	1	
3.0328	H	H	CH ₂ OCH ₂ CH=CH ₂	CH ₃	Cl	CH ₂	1	
3.0329	H	H	CH ₂ OCH ₂ CH=CH ₂	CH ₃	H	CH ₂	1	
3.0330	H	H	CH ₂ O(CO)CH ₃	CH ₃	F	CH ₂	1	
3.0331	H	H	CH ₂ O(CO)CH ₃	CH ₃	Cl	CH ₂	1	
3.0332	H	H	CH ₂ O(CO)CH ₃	CH ₃	H	CH ₂	1	
3.0333	H	H	CH ₂ OCH ₂ C≡CH	CH ₃	F	CH ₂	1	
3.0334	H	H	CH ₂ OCH ₂ C≡CH	CH ₃	Cl	CH ₂	1	
3.0335	H	H	CH ₂ OCH ₂ C≡CH	CH ₃	H	CH ₂	1	
3.0336	H	H	CH ₂ OCH ₂ C≡CCH ₃	CH ₃	F	CH ₂	1	
3.0337	H	H	CH ₂ OCH ₂ C≡CCH ₃	CH ₃	Cl	CH ₂	1	
3.0338	H	H	CH ₂ OCH ₂ C≡CCH ₃	CH ₃	H	CH ₂	1	
3.0339	H	H		CH ₃	F	CH ₂	1	

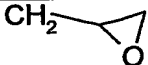
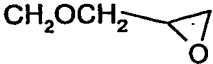
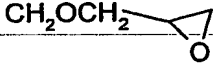
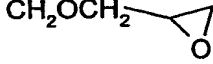
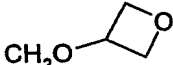
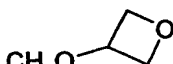
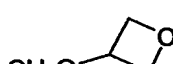

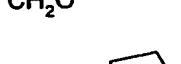
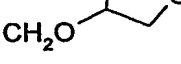
- 131 -

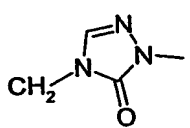
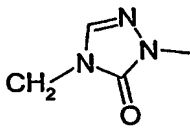
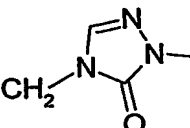
No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Phys. data, remarks
3.0340	H	H		CH ₃	Cl	CH ₂	1	
3.0341	H	H		CH ₃	H	CH ₂	1	
3.0342	H	H		CH ₃	F	CH ₂	1	
3.0343	H	H		CH ₃	Cl	CH ₂	1	
3.0344	H	H		CH ₃	H	CH ₂	1	
3.0345	H	H		CH ₃	F	CH ₂	1	
3.0346	H	H		CH ₃	Cl	CH ₂	1	
3.0347	H	H		CH ₃	H	CH ₂	1	
3.0348	H	H		CH ₃	F	CH ₂	1	
3.0349	H	H		CH ₃	Cl	CH ₂	1	
3.0350	H	H		CH ₃	H	CH ₂	1	
3.0351	H	H		CH ₃	F	CH ₂	1	
3.0352	H	H		CH ₃	Cl	CH ₂	1	

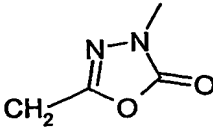
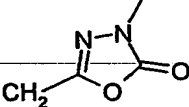
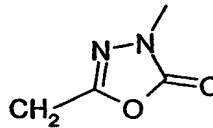
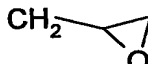
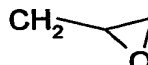
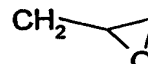
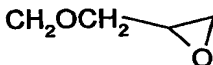
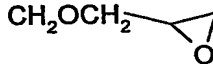
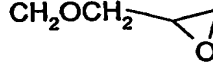
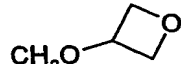
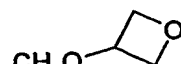


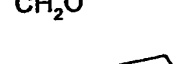
- 132 -

No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Phys. data, remarks
3.0353	H	H		CH ₃	H	CH ₂	1	
3.0354	H	H		CH ₃	F	CH ₂	1	
3.0355	H	H		CH ₃	Cl	CH ₂	1	
3.0356	H	H		CH ₃	H	CH ₂	1	
3.0357	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	CH ₃	F	CH ₂	1	
3.0358	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	CH ₃	Cl	CH ₂	1	
3.0359	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	CH ₃	H	CH ₂	1	
3.0360	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	CH ₃	F	CH ₂	1	
3.0361	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	CH ₃	Cl	CH ₂	1	
3.0362	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	CH ₃	H	CH ₂	1	
3.0363	CH ₃	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	CH ₃	F	CH ₂	1	
3.0364	CH ₃	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	CH ₃	Cl	CH ₂	1	
3.0365	CH ₃	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	CH ₃	H	CH ₂	1	
3.0366	CH ₃	CH ₃	CH ₂ OCH ₂ Ph	CH ₃	F	CH ₂	1	
3.0367	CH ₃	CH ₃	CH ₂ OCH ₂ Ph	CH ₃	Cl	CH ₂	1	
3.0368	CH ₃	CH ₃	CH ₂ OCH ₂ Ph	CH ₃	H	CH ₂	1	
3.0369	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OH	CH ₃	F	CH ₂	1	
3.0370	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OH	CH ₃	Cl	CH ₂	1	
3.0371	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ OH	CH ₃	H	CH ₂	1	
3.0372	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	CH ₃	F	CH ₂	1	
3.0373	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	CH ₃	Cl	CH ₂	1	
3.0374	CH ₃	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	CH ₃	H	CH ₂	1	
3.0375	CH ₃	CH ₃	CH ₂ OCH ₂ CF ₃	CH ₃	F	CH ₂	1	
3.0376	CH ₃	CH ₃	CH ₂ OCH ₂ CF ₃	CH ₃	Cl	CH ₂	1	
3.0377	CH ₃	CH ₃	CH ₂ OCH ₂ CF ₃	CH ₃	H	CH ₂	1	
3.0378	CH ₃	CH ₃	CH ₂ OCH ₂ CH=CH ₂	CH ₃	F	CH ₂	1	
3.0379	CH ₃	CH ₃	CH ₂ OCH ₂ CH=CH ₂	CH ₃	Cl	CH ₂	1	

No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Phys. data, remarks
3.0380	CH ₃	CH ₃	CH ₂ OCH ₂ CH=CH ₂	CH ₃	H	CH ₂	1	
3.0381	CH ₃	CH ₃	CH ₂ O(CO)CH ₃	CH ₃	F	CH ₂	1	
3.0382	CH ₃	CH ₃	CH ₂ O(CO)CH ₃	CH ₃	Cl	CH ₂	1	
3.0383	CH ₃	CH ₃	CH ₂ O(CO)CH ₃	CH ₃	H	CH ₂	1	
3.0384	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CH	CH ₃	F	CH ₂	1	
3.0385	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CH	CH ₃	Cl	CH ₂	1	
3.0386	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CH	CH ₃	H	CH ₂	1	
3.0387	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	CH ₃	F	CH ₂	1	
3.0388	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	CH ₃	Cl	CH ₂	1	
3.0389	CH ₃	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	CH ₃	H	CH ₂	1	
3.0390	CH ₃	CH ₃		CH ₃	F	CH ₂	1	
3.0391	CH ₃	CH ₃		CH ₃	Cl	CH ₂	1	
3.0392	CH ₃	CH ₃		CH ₃	H	CH ₂	1	
3.0393	CH ₃	CH ₃		CH ₃	F	CH ₂	1	
3.0394	CH ₃	CH ₃		CH ₃	Cl	CH ₂	1	
3.0395	CH ₃	CH ₃		CH ₃	H	CH ₂	1	
3.0396	CH ₃	CH ₃		CH ₃	F	CH ₂	1	
3.0397	CH ₃	CH ₃		CH ₃	Cl	CH ₂	1	

No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Phys. data, remarks
3.0398	CH ₃	CH ₃		CH ₃	H	CH ₂	1	
3.0399	CH ₃	CH ₃		CH ₃	F	CH ₂	1	
3.0400	CH ₃	CH ₃		CH ₃	Cl	CH ₂	1	
3.0401	CH ₃	CH ₃		CH ₃	H	CH ₂	1	
3.0402	CH ₃	CH ₃		CH ₃	F	CH ₂	1	
3.0403	CH ₃	CH ₃		CH ₃	Cl	CH ₂	1	
3.0404	CH ₃	CH ₃		CH ₃	H	CH ₂	1	
3.0405	CH ₃	CH ₃		CH ₃	F	CH ₂	1	
3.0406	CH ₃	CH ₃		CH ₃	Cl	CH ₂	1	
3.0407	CH ₃	CH ₃		CH ₃	H	CH ₂	1	
3.0408	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	CH ₃	F	CH ₂	1	
3.0409	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	CH ₃	Cl	CH ₂	1	
3.0410	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₃	CH ₃	H	CH ₂	1	
3.0411	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	CH ₃	F	CH ₂	1	
3.0412	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	CH ₃	Cl	CH ₂	1	
3.0413	H	CH ₃	CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₃	CH ₃	H	CH ₂	1	
3.0414	H	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	CH ₃	F	CH ₂	1	
3.0415	H	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	CH ₃	Cl	CH ₂	1	
3.0416	H	CH ₃	CH ₂ N(CH ₃)SO ₂ CH ₃	CH ₃	H	CH ₂	1	
3.0417	H	CH ₃	CH ₂ OCH ₂ Ph	CH ₃	F	CH ₂	1	
3.0418	H	CH ₃	CH ₂ OCH ₂ Ph	CH ₃	Cl	CH ₂	1	

No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Phys. data, remarks
3.0419	H	CH ₃	CH ₂ OCH ₂ Ph	CH ₃	H	CH ₂	1	
3.0420	H	CH ₃	CH ₂ OCH ₂ CH ₂ OH	CH ₃	F	CH ₂	1	
3.0421	H	CH ₃	CH ₂ OCH ₂ CH ₂ OH	CH ₃	Cl	CH ₂	1	
3.0422	H	CH ₃	CH ₂ OCH ₂ CH ₂ OH	CH ₃	H	CH ₂	1	
3.0423	H	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	CH ₃	F	CH ₂	1	
3.0424	H	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	CH ₃	Cl	CH ₂	1	
3.0425	H	CH ₃	CH ₂ OCH ₂ CH ₂ Cl	CH ₃	H	CH ₂	1	
3.0426	H	CH ₃	CH ₂ OCH ₂ CF ₃	CH ₃	F	CH ₂	1	
3.0427	H	CH ₃	CH ₂ OCH ₂ CF ₃	CH ₃	Cl	CH ₂	1	
3.0428	H	CH ₃	CH ₂ OCH ₂ CF ₃	CH ₃	H	CH ₂	1	
3.0429	H	CH ₃	CH ₂ OCH ₂ CH=CH ₂	CH ₃	F	CH ₂	1	
3.0430	H	CH ₃	CH ₂ OCH ₂ CH=CH ₂	CH ₃	Cl	CH ₂	1	
3.0431	H	CH ₃	CH ₂ OCH ₂ CH=CH ₂	CH ₃	H	CH ₂	1	
3.0432	H	CH ₃	CH ₂ O(CO)CH ₃	CH ₃	F	CH ₂	1	
3.0433	H	CH ₃	CH ₂ O(CO)CH ₃	CH ₃	Cl	CH ₂	1	
3.0434	H	CH ₃	CH ₂ O(CO)CH ₃	CH ₃	H	CH ₂	1	
3.0435	H	CH ₃	CH ₂ OCH ₂ C≡CH	CH ₃	F	CH ₂	1	
3.0436	H	CH ₃	CH ₂ OCH ₂ C≡CH	CH ₃	Cl	CH ₂	1	
3.0437	H	CH ₃	CH ₂ OCH ₂ C≡CH	CH ₃	H	CH ₂	1	
3.0438	H	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	CH ₃	F	CH ₂	1	
3.0439	H	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	CH ₃	Cl	CH ₂	1	
3.0440	H	CH ₃	CH ₂ OCH ₂ C≡CCH ₃	CH ₃	H	CH ₂	1	
3.0441	H	CH ₃		CH ₃	F	CH ₂	1	
3.0442	H	CH ₃		CH ₃	Cl	CH ₂	1	
3.0443	H	CH ₃		CH ₃	H	CH ₂	1	

No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Phys. data, remarks
3.0444	H	CH ₃		CH ₃	F	CH ₂	1	
3.0445	H	CH ₃		CH ₃	Cl	CH ₂	1	
3.0446	H	CH ₃		CH ₃	H	CH ₂	1	
3.0447	H	CH ₃		CH ₃	F	CH ₂	1	
3.0448	H	CH ₃		CH ₃	Cl	CH ₂	1	
3.0449	H	CH ₃		CH ₃	H	CH ₂	1	
3.0450	H	CH ₃		CH ₃	F	CH ₂	1	
3.0451	H	CH ₃		CH ₃	Cl	CH ₂	1	
3.0452	H	CH ₃		CH ₃	H	CH ₂	1	
3.0453	H	CH ₃		CH ₃	F	CH ₂	1	
3.0454	H	CH ₃		CH ₃	Cl	CH ₂	1	
3.0455	H	CH ₃		CH ₃	H	CH ₂	1	
3.0456	H	CH ₃		CH ₃	F	CH ₂	1	
3.0457	H	CH ₃		CH ₃	Cl	CH ₂	1	

- 137 -

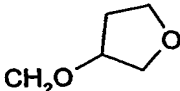
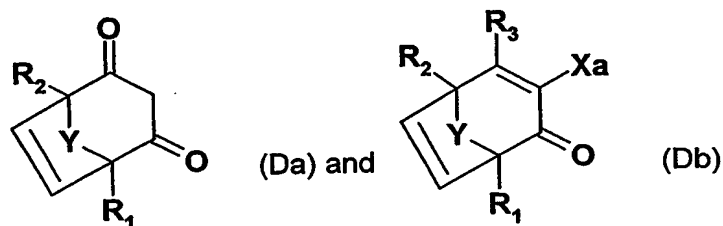
No.	R ₁	R ₂	Z ₁	R ₃₀	X	Y	p	Phys. data, remarks
3.0458	H	CH ₃		CH ₃	H	CH ₂	1	

Table 4: Intermediates of formulae Da and Db:




No.	R ₁	R ₂	R ₃	Y	Xa	Physical data
4.0001	H	H	OH	CH ₂	H	see Example P9; tautomeric form Da
4.0002	H	H	OCH ₃	CH ₂	H	
4.0003	H	H	OCH ₂ CH ₃	CH ₂	H	
4.0004	H	H	OC(CH ₃) ₂	CH ₂	H	
4.0005	H	H	OH	CH ₂ CH ₂	H	see Example P12; tautomeric form Da
4.0006	H	H	OCH ₃	CH ₂ CH ₂	H	
4.0007	H	H	OCH ₂ CH ₃	CH ₂ CH ₂	H	
4.0008	H	H	OC(CH ₃) ₂	CH ₂ CH ₂	H	
4.0009	H	H	OH	O	H	¹ H NMR (300 MHz; CDCl ₃) δ 6.35 (s, 2H); 5.66 (s, 1H); 3.78 (d, 1H); 3.43 (d, 1H); tautomeric form Da
4.0010	H	H	OCH ₃	O	H	
4.0011	H	H	OCH ₂ CH ₃	O	H	
4.0012	H	H	OC(CH ₃) ₂	O	H	
4.0013	H	H	OH	NSO ₂ CH ₃	H	
4.0014	H	H	OCH ₃	NSO ₂ CH ₃	H	
4.0015	H	H	OCH ₂ CH ₃	NSO ₂ CH ₃	H	
4.0016	H	H	OC(CH ₃) ₂	NSO ₂ CH ₃	H	
4.0017	H	H	OH	NC(O)C(CH ₃) ₃	H	
4.0018	H	H	OCH ₃	NC(O)C(CH ₃) ₃	H	
4.0019	H	H	OCH ₂ CH ₃	NC(O)C(CH ₃) ₃	H	
4.0020	H	H	OC(CH ₃) ₂	NC(O)C(CH ₃) ₃	H	

No.	R ₁	R ₂	R ₃	Y	Xa Physical data
4.0021	H	H	OH	CH ₂	Cl
4.0022	H	H	OCH ₃	CH ₂	Cl
4.0023	H	H	OCH ₂ CH ₃	CH ₂	Cl
4.0024	H	H	OC(CH ₃) ₂	CH ₂	Cl
4.0025	H	H	OH	CH ₂ CH ₂	Cl see Preparation Example P11
4.0026	H	H	OCH ₃	CH ₂ CH ₂	Cl
4.0027	H	H	OCH ₂ CH ₃	CH ₂ CH ₂	Cl
4.0028	H	H	OC(CH ₃) ₂	CH ₂ CH ₂	Cl
4.0029	H	H	OH	O	Cl
4.0030	H	H	OCH ₃	O	Cl
4.0031	H	H	OCH ₂ CH ₃	O	Cl
4.0032	H	H	OC(CH ₃) ₂	O	Cl
4.0033	H	H	OH	NSO ₂ CH ₃	Cl
4.0034	H	H	OCH ₃	NSO ₂ CH ₃	Cl
4.0035	H	H	OCH ₂ CH ₃	NSO ₂ CH ₃	Cl
4.0036	H	H	OC(CH ₃) ₂	NSO ₂ CH ₃	Cl
4.0037	H	H	OH	NC(O)C(CH ₃) ₃	Cl
4.0038	H	H	OCH ₃	NC(O)C(CH ₃) ₃	Cl
4.0039	H	H	OCH ₂ CH ₃	NC(O)C(CH ₃) ₃	Cl
4.0040	H	H	OC(CH ₃) ₂	NC(O)C(CH ₃) ₃	Cl
4.0041	H	H	OH	CH ₂	Br
4.0042	H	H	OCH ₃	CH ₂	Br
4.0043	H	H	OCH ₂ CH ₃	CH ₂	Br
4.0044	H	H	OC(CH ₃) ₂	CH ₂	Br
4.0045	H	H	OH	CH ₂ CH ₂	Br
4.0046	H	H	OCH ₃	CH ₂ CH ₂	Br
4.0047	H	H	OCH ₂ CH ₃	CH ₂ CH ₂	Br
4.0048	H	H	OC(CH ₃) ₂	CH ₂ CH ₂	Br
4.0049	H	H	OH	O	Br
4.0050	H	H	OCH ₃	O	Br
4.0051	H	H	OCH ₂ CH ₃	O	Br
4.0052	H	H	OC(CH ₃) ₂	O	Br
4.0053	H	H	OH	NSO ₂ CH ₃	Br

No.	R ₁	R ₂	R ₃	Y	Xa Physical data
4.0054	H	H	OCH ₃	NSO ₂ CH ₃	Br
4.0055	H	H	OCH ₂ CH ₃	NSO ₂ CH ₃	Br
4.0056	H	H	OC(CH ₃) ₂	NSO ₂ CH ₃	Br
4.0057	H	H	OH	NC(O)C(CH ₃) ₃	Br
4.0058	H	H	OCH ₃	NC(O)C(CH ₃) ₃	Br
4.0059	H	H	OCH ₂ CH ₃	NC(O)C(CH ₃) ₃	Br
4.0060	H	H	OC(CH ₃) ₂	NC(O)C(CH ₃) ₃	Br
4.0061	H	CH ₃	OH	CH ₂	H ¹ H NMR (300 MHz; CDCl ₃) δ 6.30 (m, 1H); 6.10 (m, 1H); 3.73 (d, 1H); 3.44 (d, 1H); 1.62 (s, 3H); tautomeric form Db
4.0062	H	CH ₃	OCH ₃	CH ₂	H
4.0063	H	CH ₃	OCH ₂ CH ₃	CH ₂	H
4.0064	H	CH ₃	OC(CH ₃) ₂	CH ₂	H
4.0065	H	CH ₃	OH	CH ₂ CH ₂	H
4.0066	H	CH ₃	OCH ₃	CH ₂ CH ₂	H
4.0067	H	CH ₃	OCH ₂ CH ₃	CH ₂ CH ₂	H
4.0068	H	CH ₃	OC(CH ₃) ₂	CH ₂ CH ₂	H
4.0069	H	CH ₃	OH	O	H
4.0070	H	CH ₃	OCH ₃	O	H
4.0071	H	CH ₃	OCH ₂ CH ₃	O	H
4.0072	H	CH ₃	OC(CH ₃) ₂	O	H
4.0073	H	CH ₃	OH	NSO ₂ CH ₃	H
4.0074	H	CH ₃	OCH ₃	NSO ₂ CH ₃	H
4.0075	H	CH ₃	OCH ₂ CH ₃	NSO ₂ CH ₃	H
4.0076	H	CH ₃	OC(CH ₃) ₂	NSO ₂ CH ₃	H
4.0077	H	CH ₃	OH	NC(O)C(CH ₃) ₃	H
4.0078	H	CH ₃	OCH ₃	NC(O)C(CH ₃) ₃	H
4.0079	H	CH ₃	OCH ₂ CH ₃	NC(O)C(CH ₃) ₃	H
4.0080	H	CH ₃	OC(CH ₃) ₂	NC(O)C(CH ₃) ₃	H
4.0081	H	CH ₃	OH	CH ₂	Cl
4.0082	H	CH ₃	OCH ₃	CH ₂	Cl
4.0083	H	CH ₃	OCH ₂ CH ₃	CH ₂	Cl
4.0084	H	CH ₃	OC(CH ₃) ₂	CH ₂	Cl

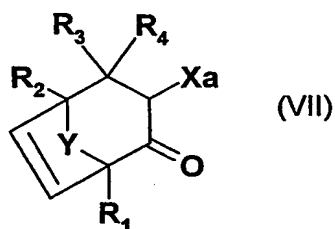
No.	R ₁	R ₂	R ₃	Y	Xa Physical data
4.0085	H	CH ₃	OH	CH ₂ CH ₂	Cl
4.0086	H	CH ₃	OCH ₃	CH ₂ CH ₂	Cl
4.0087	H	CH ₃	OCH ₂ CH ₃	CH ₂ CH ₂	Cl
4.0088	H	CH ₃	OC(CH ₃) ₂	CH ₂ CH ₂	Cl
4.0089	H	CH ₃	OH	O	Cl
4.0090	H	CH ₃	OCH ₃	O	Cl
4.0091	H	CH ₃	OCH ₂ CH ₃	O	Cl
4.0092	H	CH ₃	OC(CH ₃) ₂	O	Cl
4.0093	H	CH ₃	OH	NSO ₂ CH ₃	Cl
4.0094	H	CH ₃	OCH ₃	NSO ₂ CH ₃	Cl
4.0095	H	CH ₃	OCH ₂ CH ₃	NSO ₂ CH ₃	Cl
4.0096	H	CH ₃	OC(CH ₃) ₂	NSO ₂ CH ₃	Cl
4.0097	H	CH ₃	OH	NC(O)C(CH ₃) ₃	Cl
4.0098	H	CH ₃	OCH ₃	NC(O)C(CH ₃) ₃	Cl
4.0099	H	CH ₃	OCH ₂ CH ₃	NC(O)C(CH ₃) ₃	Cl
4.0100	H	CH ₃	OC(CH ₃) ₂	NC(O)C(CH ₃) ₃	Cl
4.0101	H	CH ₃	OH	CH ₂	Br
4.0102	H	CH ₃	OCH ₃	CH ₂	Br
4.0103	H	CH ₃	OCH ₂ CH ₃	CH ₂	Br
4.0104	H	CH ₃	OC(CH ₃) ₂	CH ₂	Br
4.0105	H	CH ₃	OH	CH ₂ CH ₂	Br
4.0106	H	CH ₃	OCH ₃	CH ₂ CH ₂	Br
4.0107	H	CH ₃	OCH ₂ CH ₃	CH ₂ CH ₂	Br
4.0108	H	CH ₃	OC(CH ₃) ₂	CH ₂ CH ₂	Br
4.0109	H	CH ₃	OH	O	Br
4.0110	H	CH ₃	OCH ₃	O	Br
4.0111	H	CH ₃	OCH ₂ CH ₃	O	Br
4.0112	H	CH ₃	OC(CH ₃) ₂	O	Br
4.0113	H	CH ₃	OH	NSO ₂ CH ₃	Br
4.0114	H	CH ₃	OCH ₃	NSO ₂ CH ₃	Br
4.0115	H	CH ₃	OCH ₂ CH ₃	NSO ₂ CH ₃	Br
4.0116	H	CH ₃	OC(CH ₃) ₂	NSO ₂ CH ₃	Br
4.0117	H	CH ₃	OH	NC(O)C(CH ₃) ₃	Br

No.	R ₁	R ₂	R ₃	Y	Xa Physical data
4.0118	H	CH ₃	OCH ₃	NC(O)C(CH ₃) ₃	Br
4.0119	H	CH ₃	OCH ₂ CH ₃	NC(O)C(CH ₃) ₃	Br
4.0120	H	CH ₃	OC(CH ₃) ₂	NC(O)C(CH ₃) ₃	Br
4.0121	CH ₃	CH ₃	OH	CH ₂	H
4.0122	CH ₃	CH ₃	OCH ₃	CH ₂	H
4.0123	CH ₃	CH ₃	OCH ₂ CH ₃	CH ₂	H
4.0124	CH ₃	CH ₃	OC(CH ₃) ₂	CH ₂	H
4.0125	CH ₃	CH ₃	OH	CH ₂ CH ₂	H
4.0126	CH ₃	CH ₃	OCH ₃	CH ₂ CH ₂	H
4.0127	CH ₃	CH ₃	OCH ₂ CH ₃	CH ₂ CH ₂	H
4.0128	CH ₃	CH ₃	OC(CH ₃) ₂	CH ₂ CH ₂	H
4.0129	CH ₃	CH ₃	OH	O	H
4.0130	CH ₃	CH ₃	OCH ₃	O	H
4.0131	CH ₃	CH ₃	OCH ₂ CH ₃	O	H
4.0132	CH ₃	CH ₃	OC(CH ₃) ₂	O	H
4.0133	CH ₃	CH ₃	OH	NSO ₂ CH ₃	H
4.0134	CH ₃	CH ₃	OCH ₃	NSO ₂ CH ₃	H
4.0135	CH ₃	CH ₃	OCH ₂ CH ₃	NSO ₂ CH ₃	H
4.0136	CH ₃	CH ₃	OC(CH ₃) ₂	NSO ₂ CH ₃	H
4.0137	CH ₃	CH ₃	OH	NC(O)C(CH ₃) ₃	H
4.0138	CH ₃	CH ₃	OCH ₃	NC(O)C(CH ₃) ₃	H
4.0139	CH ₃	CH ₃	OCH ₂ CH ₃	NC(O)C(CH ₃) ₃	H
4.0140	CH ₃	CH ₃	OC(CH ₃) ₂	NC(O)C(CH ₃) ₃	H
4.0141	CH ₃	CH ₃	OH	CH ₂	Cl
4.0142	CH ₃	CH ₃	OCH ₃	CH ₂	Cl see Preparation Example P3
4.0143	CH ₃	CH ₃	OCH ₂ CH ₃	CH ₂	Cl
4.0144	CH ₃	CH ₃	OC(CH ₃) ₂	CH ₂	Cl
4.0145	CH ₃	CH ₃	OH	CH ₂ CH ₂	Cl
4.0146	CH ₃	CH ₃	OCH ₃	CH ₂ CH ₂	Cl
4.0147	CH ₃	CH ₃	OCH ₂ CH ₃	CH ₂ CH ₂	Cl
4.0148	CH ₃	CH ₃	OC(CH ₃) ₂	CH ₂ CH ₂	Cl
4.0149	CH ₃	CH ₃	OH	O	Cl
4.0150	CH ₃	CH ₃	OCH ₃	O	Cl

No.	R ₁	R ₂	R ₃	Y	Xa Physical data
4.0151	CH ₃	CH ₃	OCH ₂ CH ₃	O	Cl
4.0152	CH ₃	CH ₃	OC(CH ₃) ₂	O	Cl
4.0153	CH ₃	CH ₃	OH	NSO ₂ CH ₃	Cl
4.0154	CH ₃	CH ₃	OCH ₃	NSO ₂ CH ₃	Cl
4.0155	CH ₃	CH ₃	OCH ₂ CH ₃	NSO ₂ CH ₃	Cl
4.0156	CH ₃	CH ₃	OC(CH ₃) ₂	NSO ₂ CH ₃	Cl
4.0157	CH ₃	CH ₃	OH	NC(O)C(CH ₃) ₃	Cl
4.0158	CH ₃	CH ₃	OCH ₃	NC(O)C(CH ₃) ₃	Cl
4.0159	CH ₃	CH ₃	OCH ₂ CH ₃	NC(O)C(CH ₃) ₃	Cl
4.0160	CH ₃	CH ₃	OC(CH ₃) ₂	NC(O)C(CH ₃) ₃	Cl
4.0161	CH ₃	CH ₃	OH	CH ₂	Br
4.0162	CH ₃	CH ₃	OCH ₃	CH ₂	Br
4.0163	CH ₃	CH ₃	OCH ₂ CH ₃	CH ₂	Br
4.0164	CH ₃	CH ₃	OC(CH ₃) ₂	CH ₂	Br
4.0165	CH ₃	CH ₃	OH	CH ₂ CH ₂	Br
4.0166	CH ₃	CH ₃	OCH ₃	CH ₂ CH ₂	Br
4.0167	CH ₃	CH ₃	OCH ₂ CH ₃	CH ₂ CH ₂	Br
4.0168	CH ₃	CH ₃	OC(CH ₃) ₂	CH ₂ CH ₂	Br
4.0169	CH ₃	CH ₃	OH	O	Br
4.0170	CH ₃	CH ₃	OCH ₃	O	Br
4.0171	CH ₃	CH ₃	OCH ₂ CH ₃	O	Br
4.0172	CH ₃	CH ₃	OC(CH ₃) ₂	O	Br see Preparation Example P6
4.0173	CH ₃	CH ₃	OH	NSO ₂ CH ₃	Br
4.0174	CH ₃	CH ₃	OCH ₃	NSO ₂ CH ₃	Br
4.0175	CH ₃	CH ₃	OCH ₂ CH ₃	NSO ₂ CH ₃	Br
4.0176	CH ₃	CH ₃	OC(CH ₃) ₂	NSO ₂ CH ₃	Br
4.0177	CH ₃	CH ₃	OH	NC(O)C(CH ₃) ₃	Br
4.0178	CH ₃	CH ₃	OCH ₃	NC(O)C(CH ₃) ₃	Br
4.0179	CH ₃	CH ₃	OCH ₂ CH ₃	NC(O)C(CH ₃) ₃	Br
4.0180	CH ₃	CH ₃	OC(CH ₃) ₂	NC(O)C(CH ₃) ₃	Br
4.0181	H	H	OH		H ¹ H NMR (300 MHz; CDCl ₃) δ 6.30 (s, 2H); 3.60 (d, 1H); 3.23 (d, 1H); 2.82 (s, 1H); 0.75 (m, 4H); tautomeric form Db

No.	R ₁	R ₂	R ₃	Y	Xa	Physical data
4.0182	H	H	OH	C(=C(CH ₃) ₂)	H	¹ H NMR (300 MHz; CDCl ₃) δ 6.82 (s, 2H); 4.14 (s, 2H); 3.60 (d, 1H); 3.13 (d, 1H); 1.75 (s, 6H); tautomeric form Db
4.0183	H	H	OH	CH ₂ CH(COOCH ₃)	H	R ₇ = Br, see Preparation Example P13
4.0184	H	H	OH	CH ₂ CH(COOCH ₃)	H	R ₇ = CH

Table 5: Intermediates of formulae VII:



No.	R ₁	R ₂	R ₃	R ₄	Y	Xa	Physical data
5.0000	H	H	OCH ₃	OCH ₃	CH ₂	H	
5.0001	H	H	OCH ₂ CH ₃	OCH ₂ CH ₃	CH ₂	H	
5.0002	H	H	-OCH ₂ CH ₂ O-		CH ₂	H	see Example P8
5.0003	H	H	OCH ₃	OCH ₃	O	H	
5.0004	H	H	OCH ₂ CH ₃	OCH ₂ CH ₃	O	H	
5.0005	H	H	-OCH ₂ CH ₂ O-		O	H	
5.0006	H	H	OCH ₃	OCH ₃	NSO ₂ CH ₃	H	
5.0007	H	H	OCH ₂ CH ₃	OCH ₂ CH ₃	NSO ₂ CH ₃	H	
5.0008	H	H	-OCH ₂ CH ₂ O-		NSO ₂ CH ₃	H	
5.0009	H	H	OCH ₃	OCH ₃	NC(O)C(CH ₃) ₃	H	
5.0010	H	H	OCH ₂ CH ₃	OCH ₂ CH ₃	NC(O)C(CH ₃) ₃	H	
5.0011	H	H	-OCH ₂ CH ₂ O-		NC(O)C(CH ₃) ₃	H	
5.0012	H	H	OCH ₃	OCH ₃	CH ₂ CH ₂	H	
5.0013	H	H	OCH ₂ CH ₃	OCH ₂ CH ₃	CH ₂ CH ₂	H	
5.0014	H	H	-OCH ₂ CH ₂ O-		CH ₂ CH ₂	H	
5.0015	H	H	OCH ₃	OCH ₃	CH ₂	Cl	
5.0016	H	H	OCH ₂ CH ₃	OCH ₂ CH ₃	CH ₂	Cl	
5.0017	H	H	-OCH ₂ CH ₂ O-		CH ₂	Cl	

No.	R ₁	R ₂	R ₃	R ₄	Y	Xa Physical data
5.0018	H	H	OCH ₃	OCH ₃	O	Cl
5.0019	H	H	OCH ₂ CH ₃	OCH ₂ CH ₃	O	Cl
5.0020	H	H	-OCH ₂ CH ₂ O-		O	Cl
5.0021	H	H	OCH ₃	OCH ₃	NSO ₂ CH ₃	Cl
5.0022	H	H	OCH ₂ CH ₃	OCH ₂ CH ₃	NSO ₂ CH ₃	Cl
5.0023	H	H	-OCH ₂ CH ₂ O-		NSO ₂ CH ₃	Cl
5.0024	H	H	OCH ₃	OCH ₃	NC(O)C(CH ₃) ₃	Cl
5.0025	H	H	OCH ₂ CH ₃	OCH ₂ CH ₃	NC(O)C(CH ₃) ₃	Cl
5.0026	H	H	-OCH ₂ CH ₂ O-		NC(O)C(CH ₃) ₃	Cl
5.0027	H	H	OCH ₃	OCH ₃	CH ₂ CH ₂	Cl
5.0028	H	H	OCH ₂ CH ₃	OCH ₂ CH ₃	CH ₂ CH ₂	Cl
5.0029	H	H	-OCH ₂ CH ₂ O-		CH ₂ CH ₂	Cl
5.0030	H	H	OCH ₃	OCH ₃	CH ₂	Br
5.0031	H	H	OCH ₂ CH ₃	OCH ₂ CH ₃	CH ₂	Br
5.0032	H	H	-OCH ₂ CH ₂ O-		CH ₂	Br
5.0033	H	H	OCH ₃	OCH ₃	O	Br
5.0034	H	H	OCH ₂ CH ₃	OCH ₂ CH ₃	O	Br
5.0035	H	H	-OCH ₂ CH ₂ O-		O	Br
5.0036	H	H	OCH ₃	OCH ₃	NSO ₂ CH ₃	Br
5.0037	H	H	OCH ₂ CH ₃	OCH ₂ CH ₃	NSO ₂ CH ₃	Br
5.0038	H	H	-OCH ₂ CH ₂ O-		NSO ₂ CH ₃	Br
5.0039	H	H	OCH ₃	OCH ₃	NC(O)C(CH ₃) ₃	Br
5.0040	H	H	OCH ₂ CH ₃	OCH ₂ CH ₃	NC(O)C(CH ₃) ₃	Br
5.0041	H	H	-OCH ₂ CH ₂ O-		NC(O)C(CH ₃) ₃	Br
5.0042	H	H	OCH ₃	OCH ₃	CH ₂ CH ₂	Br
5.0043	H	H	OCH ₂ CH ₃	OCH ₂ CH ₃	CH ₂ CH ₂	Br
5.0044	H	H	-OCH ₂ CH ₂ O-		CH ₂ CH ₂	Br
5.0045	H	CH ₃	OCH ₃	OCH ₃	CH ₂	H
5.0046	H	CH ₃	OCH ₂ CH ₃	OCH ₂ CH ₃	CH ₂	H
5.0047	H	CH ₃	-OCH ₂ CH ₂ O-		CH ₂	H
5.0048	H	CH ₃	OCH ₃	OCH ₃	O	H
5.0049	H	CH ₃	OCH ₂ CH ₃	OCH ₂ CH ₃	O	H
5.0050	H	CH ₃	-OCH ₂ CH ₂ O-		O	H

No.	R ₁	R ₂	R ₃	R ₄	Y	Xa Physical data
5.0051	H	CH ₃	OCH ₃	OCH ₃	NSO ₂ CH ₃	H
5.0052	H	CH ₃	OCH ₂ CH ₃	OCH ₂ CH ₃	NSO ₂ CH ₃	H
5.0053	H	CH ₃	-OCH ₂ CH ₂ O-		NSO ₂ CH ₃	H
5.0054	H	CH ₃	OCH ₃	OCH ₃	NC(O)C(CH ₃) ₃	H
5.0055	H	CH ₃	OCH ₂ CH ₃	OCH ₂ CH ₃	NC(O)C(CH ₃) ₃	H
5.0056	H	CH ₃	-OCH ₂ CH ₂ O-		NC(O)C(CH ₃) ₃	H
5.0057	H	CH ₃	OCH ₃	OCH ₃	CH ₂ CH ₂	H
5.0058	H	CH ₃	OCH ₂ CH ₃	OCH ₂ CH ₃	CH ₂ CH ₂	H
5.0059	H	CH ₃	-OCH ₂ CH ₂ O-		CH ₂ CH ₂	H
5.0060	H	CH ₃	OCH ₃	OCH ₃	CH ₂	Cl
5.0061	H	CH ₃	OCH ₂ CH ₃	OCH ₂ CH ₃	CH ₂	Cl
5.0062	H	CH ₃	-OCH ₂ CH ₂ O-		CH ₂	Cl
5.0063	H	CH ₃	OCH ₃	OCH ₃	O	Cl
5.0064	H	CH ₃	OCH ₂ CH ₃	OCH ₂ CH ₃	O	Cl
5.0065	H	CH ₃	-OCH ₂ CH ₂ O-		O	Cl
5.0066	H	CH ₃	OCH ₃	OCH ₃	NSO ₂ CH ₃	Cl
5.0067	H	CH ₃	OCH ₂ CH ₃	OCH ₂ CH ₃	NSO ₂ CH ₃	Cl
5.0068	H	CH ₃	-OCH ₂ CH ₂ O-		NSO ₂ CH ₃	Cl
5.0069	H	CH ₃	OCH ₃	OCH ₃	NC(O)C(CH ₃) ₃	Cl
5.0070	H	CH ₃	OCH ₂ CH ₃	OCH ₂ CH ₃	NC(O)C(CH ₃) ₃	Cl
5.0071	H	CH ₃	-OCH ₂ CH ₂ O-		NC(O)C(CH ₃) ₃	Cl
5.0072	H	CH ₃	OCH ₃	OCH ₃	CH ₂ CH ₂	Cl
5.0073	H	CH ₃	OCH ₂ CH ₃	OCH ₂ CH ₃	CH ₂ CH ₂	Cl
5.0074	H	CH ₃	-OCH ₂ CH ₂ O-		CH ₂ CH ₂	Cl
5.0075	H	CH ₃	OCH ₃	OCH ₃	CH ₂	Br
5.0076	H	CH ₃	OCH ₂ CH ₃	OCH ₂ CH ₃	CH ₂	Br
5.0077	H	CH ₃	-OCH ₂ CH ₂ O-		CH ₂	Br
5.0078	H	CH ₃	OCH ₃	OCH ₃	O	Br
5.0079	H	CH ₃	OCH ₂ CH ₃	OCH ₂ CH ₃	O	Br
5.0080	H	CH ₃	-OCH ₂ CH ₂ O-		O	Br
5.0081	H	CH ₃	OCH ₃	OCH ₃	NSO ₂ CH ₃	Br
5.0082	H	CH ₃	OCH ₂ CH ₃	OCH ₂ CH ₃	NSO ₂ CH ₃	Br
5.0083	H	CH ₃	-OCH ₂ CH ₂ O-		NSO ₂ CH ₃	Br

No.	R ₁	R ₂	R ₃	R ₄	Y	Xa Physical data
5.0084	H	CH ₃	OCH ₃	OCH ₃	NC(O)C(CH ₃) ₃	Br
5.0085	H	CH ₃	OCH ₂ CH ₃	OCH ₂ CH ₃	NC(O)C(CH ₃) ₃	Br
5.0086	H	CH ₃	-OCH ₂ CH ₂ O-		NC(O)C(CH ₃) ₃	Br
5.0087	H	CH ₃	OCH ₃	OCH ₃	CH ₂ CH ₂	Br
5.0088	H	CH ₃	OCH ₂ CH ₃	OCH ₂ CH ₃	CH ₂ CH ₂	Br
5.0089	H	CH ₃	-OCH ₂ CH ₂ O-		CH ₂ CH ₂	Br
5.0090	CH ₃	CH ₃	OCH ₃	OCH ₃	CH ₂	H
5.0091	CH ₃	CH ₃	OCH ₂ CH ₃	OCH ₂ CH ₃	CH ₂	H
5.0092	CH ₃	CH ₃	-OCH ₂ CH ₂ O-		CH ₂	H
5.0093	CH ₃	CH ₃	OCH ₃	OCH ₃	O	H see Example P5
5.0094	CH ₃	CH ₃	OCH ₂ CH ₃	OCH ₂ CH ₃	O	H
5.0095	CH ₃	CH ₃	-OCH ₂ CH ₂ O-		O	H
5.0096	CH ₃	CH ₃	OCH ₃	OCH ₃	NSO ₂ CH ₃	H
5.0097	CH ₃	CH ₃	OCH ₂ CH ₃	OCH ₂ CH ₃	NSO ₂ CH ₃	H
5.0098	CH ₃	CH ₃	-OCH ₂ CH ₂ O-		NSO ₂ CH ₃	H
5.0099	CH ₃	CH ₃	OCH ₃	OCH ₃	NC(O)C(CH ₃) ₃	H
5.0100	CH ₃	CH ₃	OCH ₂ CH ₃	OCH ₂ CH ₃	NC(O)C(CH ₃) ₃	H
5.0101	CH ₃	CH ₃	-OCH ₂ CH ₂ O-		NC(O)C(CH ₃) ₃	H
5.0102	CH ₃	CH ₃	OCH ₃	OCH ₃	CH ₂ CH ₂	H
5.0103	CH ₃	CH ₃	OCH ₂ CH ₃	OCH ₂ CH ₃	CH ₂ CH ₂	H
5.0104	CH ₃	CH ₃	-OCH ₂ CH ₂ O-		CH ₂ CH ₂	H
5.0105	CH ₃	CH ₃	OCH ₃	OCH ₃	CH ₂	Cl
5.0106	CH ₃	CH ₃	OCH ₂ CH ₃	OCH ₂ CH ₃	CH ₂	Cl
5.0107	CH ₃	CH ₃	-OCH ₂ CH ₂ O-		CH ₂	Cl
5.0108	CH ₃	CH ₃	OCH ₃	OCH ₃	O	Cl see Example P3
5.0109	CH ₃	CH ₃	OCH ₂ CH ₃	OCH ₂ CH ₃	O	Cl
5.0110	CH ₃	CH ₃	-OCH ₂ CH ₂ O-		O	Cl
5.0111	CH ₃	CH ₃	OCH ₃	OCH ₃	NSO ₂ CH ₃	Cl
5.0112	CH ₃	CH ₃	OCH ₂ CH ₃	OCH ₂ CH ₃	NSO ₂ CH ₃	Cl
5.0113	CH ₃	CH ₃	-OCH ₂ CH ₂ O-		NSO ₂ CH ₃	Cl
5.0114	CH ₃	CH ₃	OCH ₃	OCH ₃	NC(O)C(CH ₃) ₃	Cl
5.0115	CH ₃	CH ₃	OCH ₂ CH ₃	OCH ₂ CH ₃	NC(O)C(CH ₃) ₃	Cl
5.0116	CH ₃	CH ₃	-OCH ₂ CH ₂ O-		NC(O)C(CH ₃) ₃	Cl


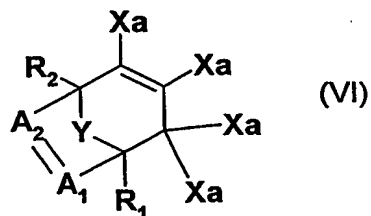
No.	R ₁	R ₂	R ₃	R ₄	Y	Xa Physical data
5.0117	CH ₃	CH ₃	OCH ₃	OCH ₃	CH ₂ CH ₂	Cl
5.0118	CH ₃	CH ₃	OCH ₂ CH ₃	OCH ₂ CH ₃	CH ₂ CH ₂	Cl
5.0119	CH ₃	CH ₃	-OCH ₂ CH ₂ O-		CH ₂ CH ₂	Cl
5.0120	CH ₃	CH ₃	OCH ₃	OCH ₃	CH ₂	Br
5.0121	CH ₃	CH ₃	OCH ₂ CH ₃	OCH ₂ CH ₃	CH ₂	Br
5.0122	CH ₃	CH ₃	-OCH ₂ CH ₂ O-		CH ₂	Br
5.0123	CH ₃	CH ₃	OCH ₃	OCH ₃	O	Br
5.0124	CH ₃	CH ₃	OCH ₂ CH ₃	OCH ₂ CH ₃	O	Br
5.0125	CH ₃	CH ₃	-OCH ₂ CH ₂ O-		O	Br
5.0126	CH ₃	CH ₃	OCH ₃	OCH ₃	NSO ₂ CH ₃	Br
5.0127	CH ₃	CH ₃	OCH ₂ CH ₃	OCH ₂ CH ₃	NSO ₂ CH ₃	Br
5.0128	CH ₃	CH ₃	-OCH ₂ CH ₂ O-		NSO ₂ CH ₃	Br
5.0129	CH ₃	CH ₃	OCH ₃	OCH ₃	NC(O)C(CH ₃) ₃	Br
5.0130	CH ₃	CH ₃	OCH ₂ CH ₃	OCH ₂ CH ₃	NC(O)C(CH ₃) ₃	Br
5.0131	CH ₃	CH ₃	-OCH ₂ CH ₂ O-		NC(O)C(CH ₃) ₃	Br
5.0132	CH ₃	CH ₃	OCH ₃	OCH ₃	CH ₂ CH ₂	Br
5.0133	CH ₃	CH ₃	OCH ₂ CH ₃	OCH ₂ CH ₃	CH ₂ CH ₂	Br
5.0134	CH ₃	CH ₃	-OCH ₂ CH ₂ O-		CH ₂ CH ₂	Br
5.0135	H	H	-OCH ₂ CH ₂ O-			Cl Amorphous crystals

Table 6: Intermediates of formula VI:



No.	A ₁	A ₂	R ₁	R ₂	Y	Xa Physical data
6.0000	CH	CH	H	H	C(=CH(OAc))	Cl major isomer I: ¹ H NMR (300 MHz; CDCl ₃) δ 7.12 (s, 1H); 6.77 (dxd, 1H); 6.35 (dxd, 1H); 4.02 (d, 1H); 3.95 (d, 1H); 2.18 (s, 3H).
6.0001	CH	CH	H	H	C(=CH(OAc))	Cl minor isomer II: ¹ H NMR (300 MHz; CDCl ₃) δ 7.14 (s, 1H); 6.84 (dxd, 1H); 6.29 (dxd, 1H); 4.55 (d, 1H); 3.54 (d, 1H); 2.19 (s, 3H).

Biological Examples

Example B1: Herbicidal action prior to emergence of the plants (pre-emergence action)

Monocotyledonous and dicotyledonous test plants are sown in standard soil in plastic pots. Immediately after sowing, the test compounds, in the form of an aqueous suspension (prepared from a 25 % wettable powder (Example F3, b) according to WO 97/34485) or in the form of an emulsion (prepared from a 25 % emulsifiable concentrate (Example F1, c)), are applied by spraying in a concentration corresponding to 125 g or 250 g of active ingredient/ha (500 litres of water/ha). The test plants are then grown in a greenhouse under optimum conditions. After a test duration of 3 weeks, the test is evaluated in accordance with a scale of ten ratings (10 = total damage, 0 = no action). Ratings of from 10 to 6 (especially from 10 to 8) indicate good to very good herbicidal action. The compounds of formula I exhibit strong herbicidal action in this test. Examples of the good herbicidal action of the compounds are given in Table B1:

Table B1: Pre-emergence herbicidal action:

Ex. No.	gr/ha	<i>Panicum</i>	<i>Echinochloa</i>	<i>Abutilon</i>	<i>Amaranthus</i>	<i>Chenopodium</i>	<i>Kochia</i>
1.0301	250	7	7	7	8	9	8
1.0411	250	10	9	10	10	10	10

Example B2: Post-emergence herbicidal action

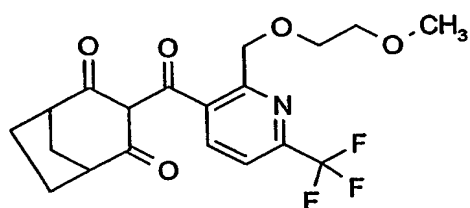
In a greenhouse, monocotyledonous and dicotyledonous test plants are grown in standard soil in plastic pots and at the 4- to 6-leaf stage are sprayed with an aqueous suspension of the test compounds of formula I prepared from a 25 % wettable powder (Example F3, b) according to WO 97/34485) or with an emulsion of the test compounds of formula I prepared from a 25 % emulsifiable concentrate (Example F1, c) according to WO 97/34485), in a concentration corresponding to 125 g or 250 g of active ingredient/ha (500 litres of water/ha). The test plants are then grown on in a greenhouse under optimum conditions. After a test duration of about 18 days, the test is evaluated in accordance with a scale of ten ratings (10 = total damage, 0 = no action). Ratings of from 10 to 6 (especially from 10 to 7) indicate good to very good herbicidal action. The compounds of formula I exhibit a strong herbicidal action in this test. Examples of the good herbicidal action of the compounds are given in Table B2:

Table B2: Post-emergence herbicidal action:

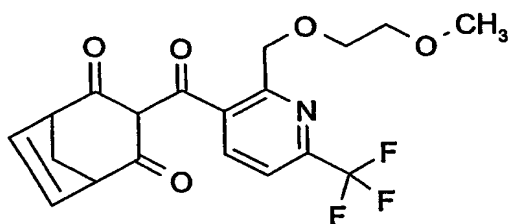
Ex. No.	gr/ha	<i>Abutilon</i>	<i>Ipomea</i>	<i>Amaranthus</i>	<i>Chenopodium</i>	<i>Stellaria</i>	<i>Abutilon</i>
1.0301	250	9	8	8	8	8	8
1.0411	250	9	10	9	10	9	9
1.1153	250	7	8	7	8	10	8

Example B3: Comparison test with a compound from the prior art: post-emergence herbicidal action:

The post-emergence herbicidal action of compound No. 1.0411 according to the invention is compared with compound "A" from WO 01/94339:



Compound "A" from WO 01/94339



Compound 1.0411 according to the present invention

Table B3: Post-emergence action:

Ex. No.	gr/ha	<i>Brachiaria</i>	<i>Rottboelia</i>	<i>Sida</i>	<i>Polygonum</i>	<i>Sinapis</i>	<i>Galium</i>
1.0411	15	10	3	8	8	8	6
A	15	4	0	7	5	6	5

It can be seen from Table B3 that compound No. 1.0411 according to the invention at a rate of application of 15 g/ha exhibits considerably better herbicidal action on the weeds than compound "A" from the prior art. This enhanced action was not to be expected in view of the structural similarity of the compounds.